DOMESTIC ENGINEERING

A Weekly Record of Progress in Plumbing, Heating, Ventilation and all Matters Pertaining to Domestic Sanitation

Whole Number 1353 CHICAGO, NOVEMBER 16, 1918 Vol. 85, No. 7

Everything for which America fought has been accomplished. It will now be our fortunate duty to assist by our example, by sober, friendly counsel and by material aid in the establishment of a just democracy throughout the world. — President Woodrow Wilson, November 11, 1918.

DEMOCRACY TRIUMPHANT!

THE partnership between "Me und Gott" has been destroyed! The world's blackest criminal is fleeing from the wrath of a triumphant democracy! The frenzied mortal, who symbolized the principles of autocracy, and who proudly admitted that he was God's vice-regent on earth, is a fugitive, stripped of every vestige of his irresponsible power!

Monday, November 11th, was "der Tag," a day of the wildest rejoicing and festivity. The spirit of Democracy Triumphant thrilled and gripped millions of hearts throughout the world. It was Democracy's greatest day.

Following the signing of the armistice, the news was flashed over the world—by wireless, telegraph and telephone. Business, industry, and commerce stood still. When the factory whistles began to announce the momentous tidings shortly after midnight, between Sunday and Monday, multitudes of men and women renounced sleep and rushed forth into the night to vent their enthusiasm.

The House of Hohenzollern is now a shattered relic of the past. We awake in the dawn of a new freedom—such as the world has never known. We awake as from a hideous nightmare.

Liberty, Humanity, Justice—the mighty trinity of human progress. It reigns supreme today! The spirit of the associated Democracies of the world flew the banners of that trinity and paid the stupendous price for freedom! The millions of heroic dead, the millions of heroic wounded represent the price laid on the altar of human liberty.

The question is being asked: "What shall be done with the man who brought untold misery to millions?" There is only one answer. Ask your conscience! The unanimous sentiment is summed up in the spirit of the Marseillaise—the anthem of freedom everywhere. He should go to the scaffold or the guillotine!

The murderous despot of Potsdam and various of his partners in the crime of the ages have fled into Holland. Here they will find probably only temporary refuge from the awakened conscience of Democracy.

The spirit of obedience to the autocratic mandates of the Hohenzollerns, bred in the bone of the German people, has at last given way to the spirit of popular revolt. The old order has crumbled. The new order is assuming the prerogatives of government.

Let us hope that the awakened forces of democracy in Germany will now proceed to the task of re-construction along lines which will assure sane progress.

Force—brute, irresponsible force precipitated the great war. And it was force—co-operative force—that ended it. Now comes the period of reconstruction with its many problems which will require our best thought and energy.

America's entry into the bloody conflict was doubtless the factor which turned the tide of victory for the Allies. Columbia upheld her past record which is so well expressed in those immortal words: "Unconditional Surrender."

As Americans we must now play our part in the great work of re-construction and bring order out of chaos. Employers and employes must pull together in one unity of purpose as we return to normal times and the quiet paths of peace and industry.

The demobilization of the many plants engaged in the manufacture of munitions has already begun, and the transfer of their activities into normal channels will doubtless proceed with characteristic Yankee efficiency.

With the cessation of hostilities, Uncle Sam finds himself the world's creditor nation, to the extent of about ten billions of dollars, and with a merchant fleet second only to that of England.

Thus we are admirably prepared for trade extension in foreign fields, and we may rest assured that an unprecedented era of prosperity awaits the nation. Business men may also feel confident that when the Government relinquishes control of the staple raw material stocks, the return to normal industry will proceed with reasonable rapidity, and we shall see a business boom of remarkable size and character.

REDUCING FUEL WASTES

Timely Notes on Reducing Fuel Wastes in Dwelling Houses and Other Small Buildings

By Charles L. Hubbard

(Continued from Page 237 in the November 9th Issue.)

When a return-line vacuum system is used, it is a good idea to put the whole radiation in one room on a single branch, so that the steam supply to all of the coils may be controlled by a single throttle valve, thus reducing the labor necessary for heat regulation and so making it more likely to be attended to.

The separate valves of the independent coils should be retained, as it may be necessary to throttle some of these in order to prevent short-circuiting and give an even distribution of steam throughout the coils.

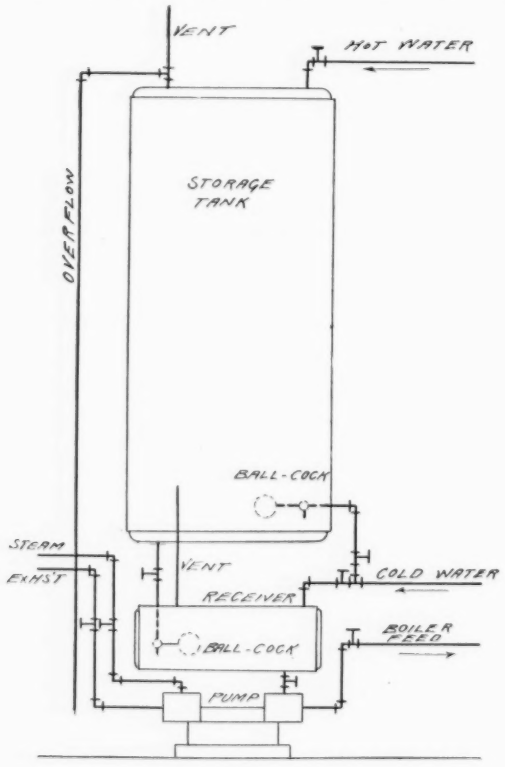


Fig. 3.

Forced hot-water heating is, in general, rather more economical in the use of fuel than steam, because it is under the control of the engineer, and the heating capacity can be proportioned to the outside temperature by varying the speed of the pump or by raising and lowering the temperature of the water at the heater.

Hot-blast systems, when the air supply is taken from out of doors, require more fuel than either direct steam or hot water on account of heating the outside air up to the normal temperature of the room before any heat is available for general warming purposes. When the air is re-circulated within the building, the conditions as regards fuel consumption are practically the same as in direct heating; hence, an important saving in fuel may be made in case of a hot-blast system by arranging for inside circulation. This, in most cases, is a comparatively simple matter, as it is only necessary to close the damper in the cold-air duct and make an opening into the cold-air chamber back of the heater. This opening should be provided with an adjustable damper so that the proportion of re-circulated air may be varied according to outside weather conditions.

In case the heater is so located that taking inside air directly into the cold-air chamber creates short-circuiting and local drafts, a return duct may be carried some distance down the room away from the main heater with drop pipes for taking air at a number of points from near the floor.

In rooms of considerable height, in which the fan and heater are located overhead, it will not usually be necessary to provide return duct, as the upper part of the room will act as a large duct. The warm air being delivered at a number of different points is well distributed, and the general movement back to the heater from the various parts of the room will be so slow that local drafts will be negligible in most cases.

Air is often delivered to a room at 140 degrees from a hot-blast system, and if the full supply is taken from out of doors in zero weather, one-half of the fuel required will be taken up in raising the temperature of the air up to 70 degrees, the normal temperature of the room. If this is returned to the heater at 60 degrees, the theoretical saving in fuel will be $60 \div 140 = 0.43$, or 43 per cent.

Actually the saving will be somewhat less than this, owing to natural inleakage of cold air, etc., but in any case there will be a substantial saving in fuel over taking the full air supply from out of doors. Of course this reduces the ventilation, but in many cases the cubic space per occupant is large, and with the air in circulation, constantly mixing with the natural inleakage, the conditions in this regard will still be very satisfactory.

If the rooms are crowded or the building is of especially tight construction, a certain amount of outside air may be mixed with that delivered by the fan.

In some manufacturing processes there are considerable quantities of hot water available at irregular periods, as from steam presses, etc. This water may often be utilized for boiler feeding by an arrangement similar to that shown in Fig. 3. A large storage tank is placed above the pump receiver and provided with an overflow and vent. The hot-

water supply enters at the top, and the bottom of the tank is connected with the pump receiver by means of a ball-cock, which admits water to the receiver as needed. When the hot-water supply is insufficient for boiler requirements, cold water is admitted to the storage tank through a ball-cock located near the bottom.

The same arrangement may sometimes be used to advantage in cases where the exhaust steam exceeds general heating and feed water requirements for certain periods during the day and falls short at other times.

Under these conditions a number of tubes may be passed through the storage tank, having a total area equal to that of the exhaust pipe, and the surplus exhaust steam made to pass through these on its way outboard, thus giving up a portion or all of its heat to the water in the tank.

A better arrangement which is entirely automatic in its operation is shown in Fig. 4. In this case a feed-water

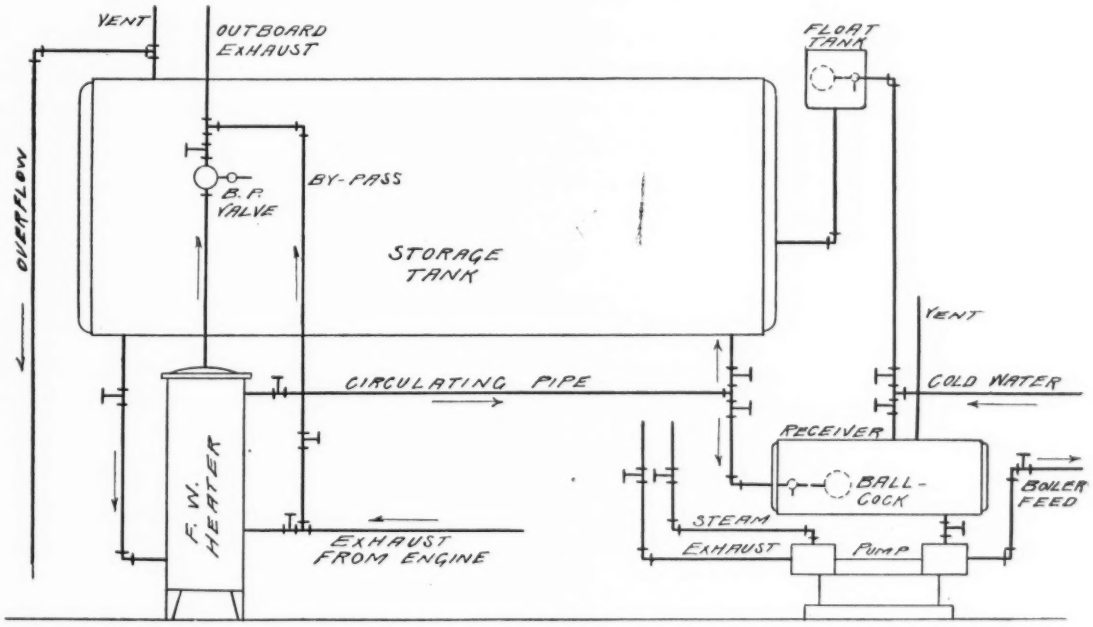


Fig. 4.

heater of the usual type is employed, but instead of the feed water being pumped directly from the heater into the boilers, it first passes into the storage tank and from here to the pump receiver, which is kept supplied automatically by means of a ball-cock within it. The circulation of water through the feed-water heater and storage tank is due to gravity and keeps up continuously, whenever there is exhaust steam passing through the tubes of the heater.

With this arrangement hot water, which has been heated when there was a surplus of exhaust, which would otherwise have passed outboard, is available in the storage tank for boiler feeding during periods when all of the exhaust may be utilized in the heating system or for other purposes about the plant. The condensation from the heating system, drips from traps, etc., should be brought back to the receiving tank in the usual manner. The large tank is simply for storing heat from excess exhaust steam, which would otherwise be wasted. In the case of manufacturing establishments requiring hot water for other purposes than those noted above, the storage tank may serve as a reservoir for all needs about the plant, so far as its capacity will go.

Another way, in which fuel may sometimes be saved, is in case of a plant located near a river or pond where plenty of water may be had for the cost of pumping. Very few power plants of small size are equipped with a condenser, especially where the exhaust steam is used for warming the buildings during the winter, however, there are five or six months when the exhaust cannot be utilized in this way, and a condenser for summer use only will often be found a convenient means of reducing the fuel consumption. A jet condenser is a simple and compact piece of apparatus and can easily be installed by any good steamfitter. The saving in fuel will depend a good deal upon the type of engine and other local conditions, but for a simple engine it will not be far from 20 to 25 per cent.

Gasoline and oil engines are now used to a considerable extent for producing power, especially in plants of small size. In the ordinary layout, steam boilers must be installed for heating purposes, requiring the usual amount of fuel during the winter. It has been found practicable to utilize much of the heat in the jacket water and in the exhaust gases by means of special heaters or boilers, so that the demand for coal during the winter months may be materially reduced.

The limits of the present article do not allow a detailed discussion of this matter but it is well to call attention to it in this connection.

Another matter of the utmost importance in the economy of fuel and one which is receiving much attention, especially in the case of large plants, is that relating to improved methods of firing. This not only includes the handling of the fire by those in charge but improvements in furnace design as well. There is a large amount of instructive matter available upon this particular subject, and the owner of every plant, whether large or small, should avail himself of this. Furthermore, it is the duty and opportunity of the heating and power contractor to call his attention to this particular point.

"I should like a porterhouse steak with mushrooms," said the stranger, "and some delicately browned toast with plenty of butter." "Excuse me," interrupted the waitress, "are you trying to give an order, or just reminiscing about old times?"—London Opinion.

SOLDER, SOLDERING *and* LEAD BURNING

Notes on Solder and Soldering, Aluminum Solder and Lead Burning

By Arthur Bateman

Solders and Soldering.

AN alloy or mixture of lead and tin produces solder known as best fine, half and half, or wiping solder, according to the percentage of tin added to the lead.

The proportion of lead and tin is altered to meet various requirements, and what proves excellent for one purpose is totally unfit for another.

The solder known as best fine is composed of three parts tin and one part lead. It is only used on very high class work and can best be manipulated with the aid of a torch, or blow pipe.

Wiping with this kind of solder is practically impossible, nor will it flow uniformly under the influence of the soldering iron.

Half and half, as the name implies, consists of equal parts lead and tin. It is extensively used in connection with the soldering iron, for tinning brass goods, making cup joints on lead, and soldering seams, making and repairing copper sinks, and tin and zinc coated receptacles.

It is, however, too fine for general wiping purposes. It sticks to the wipe cloth, and the procedure of cleaning the edges of the wiped joint is extremely difficult.

There are two distinct kinds of wiping solder, one being composed of sixty parts lead and forty parts tin, the other, two parts lead and one part tin. The former should always be used on pressure and good class work, while the latter will suffice admirably for joints on waste pipes, etc.

Consider now the poisoning of solder. Poisoned solder contains zinc, which is brought about by constantly wiping on brass. Brass is composed of two parts copper and one part zinc. The latter has a very low melting point, namely 770 degrees Fahr. Now it invariably happens that the temperature of the solder exceeds this, with the inevitable result a small quantity of zinc is melted and intermingles with it, poisoning it, and rendering it quite unworkable.

It will be found that such solder has a very coarse appearance, there will be much crumbling, and it will work for all the world like wet sand. When cold, the surface has a crystallic appearance resembling galvanized iron. Lead pipe should not be used for making solder, as a small quantity of zinc is added to facilitate its manufacture.

To purify poisoned solder take an empty pot and spread about one inch of powdered sulphur on the bottom of it, then, as soon as the solder to be treated is melted, pour onto the sulphur. The sulphur will rise slowly to the surface and carry with it any zinc which may be present. This is due to the fact that sulphur has a great affinity for zinc. A thick scum of sulphur and zinc forms on the surface which must be carefully skimmed off, and the solder will then be fit for use.

What is considered an easy way of soldering brass, consists of the following procedure. Cut a piece of tin foil the size of the surface to be soldered, then pass over the surface to be soldered a solution of sal-ammoniac for a flux, place the tin foil between the pieces, and apply a hot soldering iron until the foil is melted.

Another solder of interest to plumbers is known as "bismuth solder" and will melt in boiling water, or at a temperature of 201 degrees Fahr. It is composed of bismuth eight parts, lead two parts, and tin two parts.

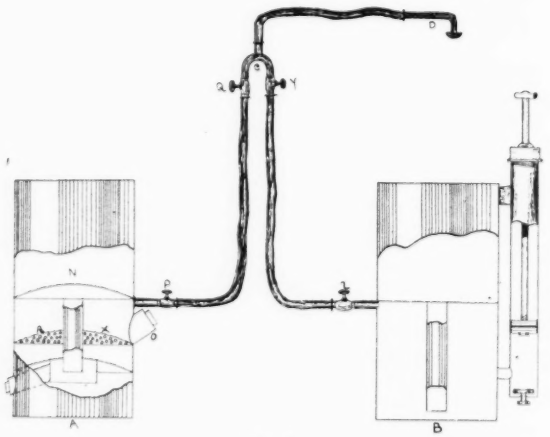


Fig. 1.

Aluminum is very difficult to solder and needs a special solder to execute a proficient and workmanlike job. Many different kinds of solders have been made for this purpose, one being composed of sixty-five parts tin, thirty parts zinc, and five parts bismuth. Another method of soldering aluminium is as follows: The portion of the aluminum to be soldered should be thoroughly cleaned with a fine file, then heated to redness with a gasoline torch. The solder is then thoroughly rubbed on the surface until it is tinned, afterwards adding as much solder

as the work requires. The solder should be allowed to cool gradually.

It is almost an impossible task to solder directly on iron, but if the surface to be soldered is moistened with blue vitriol a film of copper will be formed, on which half and half solder will adhere satisfactorily.

A solder, which is applied to the cleaned parts without the aid of any heat, is composed of the following: Brass filings, two ounces, steel filings, two ounces, fluoric acid one quarter ounce. The filings are put in the acid, and the solution applied to the parts to be soldered.

Another form of solder, which is not designed for joining metals but for plugging holes, cracks, etc., is simply rubbed into the leak, without the aid of any flux. It sets very hard, and is not affected in any way by heat or moisture.

Autogenous Soldering.

Autogenous soldering or lead burning is the process of joining lead and lead together by fusion.

Many acids have a violent action on tin, and consequently solder cannot be used in chemical works, nor in connection with the wastes from chemical laboratories, nor in any place where acids are in use.

Fig. 2.

If landings and stairs are covered with lead, very neat joints can be burned and the surface made quite smooth and clean. Again, for ornamental roof work, lead burning has advantages over soldering, as solder has a very patchy appearance, while lead burning is not noticed. However, the necessary equipment for this work is not convenient for small jobs and jobbing work, and it is impossible to join metals other than lead. Furthermore, the manipulation of the appliances is dangerous work, especially for the inexperienced operator.

Very crude and small work can be accomplished with the aid of a gasoline torch, or red hot soldering iron, but in order to execute lead burning in a proficient manner, a flame of a temperature of 2000 degrees Fahr. is necessary, which can be obtained by mixing hydrogen and air together. This is known as the "aero-hydrogen" system, while mixing oxygen and coal gas together is known as the oxy-coal gas process.

The full equipment of the former consists of a hydrogen generating machine A, a water bellows B, a breeches piece C, and a flame D, as shown in Fig. 1. To generate the hydrogen, remove the filling cap O, and place two or three slugs of zinc about 3 inches square and one inch thick on the perforated lead tray X. Next partly fill the upper chamber N with water and add common vitriol (sulphuric acid) to the water. The correct proportion is 6 parts water to 1 part acid. If the water is added to the acid, an explosion will occur. The floor of the chamber N consists of a lead tray with a 1-inch lead pipe R in the center, extending down into the lower chamber.

The air pressure in the lower chamber keeps the acid in N, but when the cocks P and Q are opened, and the air in the lower chamber is allowed to escape, the diluted acid then flows into the lower chamber and attacks the zinc. Hydrogen gas is immediately generated, and when the pipes as far as D are filled, the cocks P and Q should be closed. The gas now generated in the lower chamber forces the acid up the pipe R into the upper chamber N again, and the hydrogen is now under pressure and ready for work. The other part of the apparatus consists of the chamber B, open at the top, and a partition in the center with a pipe extending into the lower chamber. With the

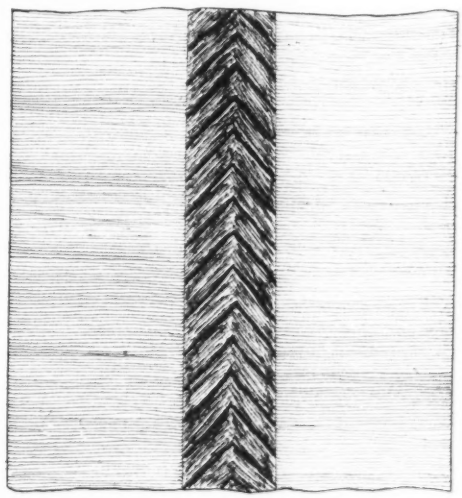


Fig. 3.

upper chamber filled with water, the cocks Z and Y from the water bellows are now opened and the water runs from the upper to the lower chamber, filling it with water. Air is then pumped into the lower chamber from the attached pump which drives the water back into the upper chamber, at the same time putting the air contained in the lower chamber under pressure. Thus we have both

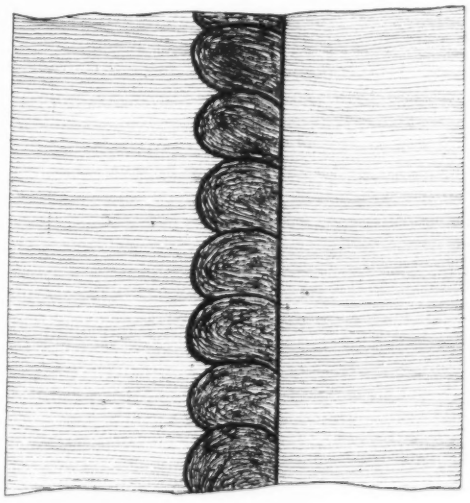


Fig. 4.

the hydrogen and the air under pressure. Now turn on the hydrogen and light at the flame D, afterward adding the required amount of air until the flame is the exact shape of that, shown in Fig. 2, and about 5 inches long.

The second system consists of an iron cylinder containing oxygen under pressure, while the coal gas can be obtained from any gas fixture in the building, or if no coal

(Continued on Page 272.)

The HEATING CONTRACTOR'S OPPORTUNITY *to* CASH IN *on* PIPE *and* BOILER COVERING

Autumn the Opportune Time to Open Drive on Houseowners for the Sale of Insulation in Connection With Greater Fuel Conservation and Efficiency in Heat Transmission

By John A. Ward

NOW is the seasonal time for the heating contractor to cash in on pipe covering. While he is advocating the overhauling of heating systems in the interests of economy and fuel conservation, he can supplement his promotional efforts by featuring the advantage of insulating exposed pipe and boiler surfaces before the advent of cold weather.

Many heating contractors are realizing a substantial profit from the sale and installation of pipe and boiler covering during the autumn months.

They have found that where houseowners could not afford to expend the necessary money on a complete overhauling of their heating systems, they could often be persuaded to invest an amount sufficient to insulate some or all of the exposed heating surfaces in the basement.

The heat saving value of pipe and boiler covering is self-evident, but nevertheless many houseowners must be shown that such is actually the case. Clean-cut and convincing selling arguments are necessary. The heating contractor, who interviews houseowners, can quote authoritative facts and figures on the amount of heat lost or dissipated from the bare surfaces of boilers, heaters and piping.

It has been demonstrated, according to Alfred G. King, the well known authority on steam and hot water heating, that a square foot of uncovered pipe surface filled with steam at one-hundred pounds pressure, will radiate and dissipate in a year the heat put into 3,716 pounds of steam by the economic combustion of 398 pounds of coal, and that thus ten square feet of bare steam pipe surface with steam at 100 pounds pressure, corresponds approximately to the waste or loss of two tons of coal per annum.

One of the simplest methods of demonstrating the value of pipe covering is to explain to the doubting houseowner, that insulation holds and saves in the steam and hot water system, in the same way as clothing retains and conserves the heat of the human body.

Another argument, which will doubtless appeal to the thinking houseowner, and particularly the housewife, is the fact that a basement with insulated heat surfaces will insure a temperature suitable for the safe storing of fruits and vegetables, which are so apt to spoil and become worthless in a basement, where the escaping heat from bare heat surfaces is too great.

There are heating contractors who have made it a practice each autumn to investigate the needs of houseowners in the pipe covering line and kindred heating requirements.

A list of those who have heating systems, which are not insulated, is obtained after which the bombardment for business begins.

Four kind of sales ammunition is then brought into play in the drive for this profitable business: The personal visit, the telephone, the sales letter and newspaper advertising.

All of these methods are important, and it is advisable to employ them in unison in the campaign to secure customers. When the telephone is used, it is essential that your talking points should be so convincing that the houseowner's interest will be fully aroused.

There are two important factors, which the house or factory owner takes into consideration in the operation of his heating plant, namely cost of operation and efficiency of heat delivery.

The saving of heat—the delivery of more heat per ton of coal is the natural ambition of all fuel users, whether in home, factory, office building or school. The perfection of modern heat insulations is saving millions of dollars worth of fuel each year by preventing the escape of heat from pipes, flues, boilers and furnaces.

Show your prospective customer that heat insulation is an economical measure, because its first and most important function is to reduce the operating expense of your heating plant.

Heating contractors, who are seeking to swell their volume of business, should therefore familiarize themselves with the advantage of using heat insulations. They should be ready at this time of the year to demonstrate in their selling talks and advertising, that the insulation of heated surfaces, including high pressure steam lines, must be viewed in the light of an investment, and not as an item of expense.

The heating contractor, who is intent upon showing

that it is really an investment, can also call attention to the fact that pipe covering of good quality will successfully insulate cold water pipes against freezing, providing of course adequate thicknesses are used, and the surface is properly painted.

Advertising Pipe Covering.

The heating contractor, who is anxious to drive home the autumn selling arguments in favor of insulation, can strengthen his opportunities by carrying snappy advertising in his local paper.

Such advertising should be a direct appeal to the houseowner's desire for economy of operation in winter heating. It should be an appeal that will arouse interest from the dollars-and-cents viewpoint. Appropriate illustrations for insulation advertising can usually be secured from the various manufacturers who often have special cuts for insertion in newspaper copy.

The heating contractor, in all his selling campaigns, should bear in mind that seasonal newspaper advertising is a prominent factor in successful sales building.

An advertisement to be successful, must be concise, logical and appealing, and so placed as to be before the eye of the public at practically all times. The fact, that the advertisement does not bring immediate results, is no criterion that there is anything wrong with the advertisement. Like any honest endeavor, it must be continued to gain the point in view.

Personal Salesmanship.

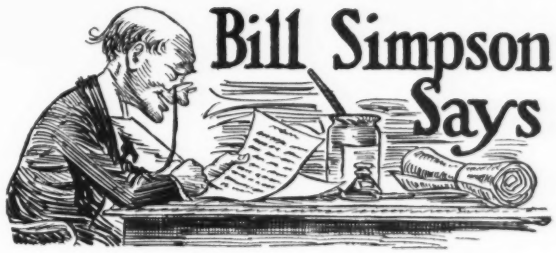
Real estate men or renting agents are a class of excellent prospects, who are worth cultivating. Convince them that insulation is a big factor in coal saving and an advantage in greater heat efficiency, and they in turn will recommend insulation to the owners of the apartments in question.

The heating contractor can go forth with his selling ax well sharpened. He can carry letters of endorsement from houseowners, who have tried pipe and boiler covering and have found it a decisive advantage in the program of conservation. Such letters can be used effectively as ammunition against any question of doubt that may arise in the prospect's mind.

"The strategy of selling insulation, like anything else," said a successful heating contractor, "is to let your prospect make the initial attack on your proposition, and then outflank him; first, by letting him lead in the conversation and, second, by appreciative agreement with what he has to say, until the ground upon which he stands can be captured.

"Opinions, it must be remembered, are only relative. They depend upon the point of view. The art of persuasion in selling insulation consists in changing the point of view of a prospect. This is not done, however, by combating the prospect's pet ideas. He may tell you emphatically that he has this or that fuel-saving device attached to his boiler and that he is therefore not interested in insulation. Tell him that fuel-saving devices are excellent adjuncts, but that insulation is a fundamental necessity which will reduce still further his fuel costs. Remember that nothing is quite so dear to a man as his opinions. You must therefore go deeper in your sales strategy, and change the thoughts and feelings upon which his opinions are based."

Autumn is positively the season for featuring insulation, and the wise heating contractor will push it vigorously. He has a proposition in pipe and boiler covering that belongs to this era of conservation when effort is being made toward eliminating every avenue of waste in production and distribution, and in promoting the gospel of greater efficiency.



(With Apologies to K. C. B.)

Most of us
* * *
Had a rude awakening
* * *
About 1 o'clock
* * *
On Thursday Afternoon,
* * *
November 7th,
* * *
When the rumor
* * *
Was Flashed
* * *
Across the Country
* * *
That Germany Had Surrendered.
* * *
Sure—we'd been *expecting* it,
* * *
But all of a sudden
* * *
We realized that
* * *
We were *not ready* for it.
* * *
Visions came to our mind
* * *
Immediately of big orders
* * *
Being cancelled—with
* * *
None to take their place.
* * *
It seemed as though
* * *
Our props were suddenly
* * *
Knocked from beneath us,
* * *
And we had nothing to
* * *
Stand on.
* * *
Many firms who had
* * *
Stopped advertising
* * *
And stopped activity
* * *
Awoke with a jump.
* * *
And I'll bet that
* * *
A lot of them wish now
* * *
That they had not
* * *
Put their "good will"
* * *
In cold storage
* * *
For the past 18 months.—
* * *
Peace is now here.
* * *
But, as with Death—
* * *
So with Peace—
* * *
Mighty few of us are ready for it.

QUESTIONS & ANSWERS

PRIVATE WATER SUPPLY SYSTEM FOR COUNTRY ESTATE.

Editor "Domestic Engineering":—We have a water supply problem on hand and would appreciate some advice from your valuable paper.

The conditions are as follows: A large private residence with barns, garage, etc., is located on a hillside in the country. The top of hill is back of the house and other buildings about three hundred yards, being about eighty feet above second floor where the highest plumbing fixtures are located.

There is no chance of getting a supply of water on house side of the hill top. Owner has a large spring on other side of hill about one hundred yards from top and fifty feet below level of hill, between it and house.

A diagram showing the levels and locations is illustrated in Fig. 1.

Kindly advise if there is any way of siphoning the water

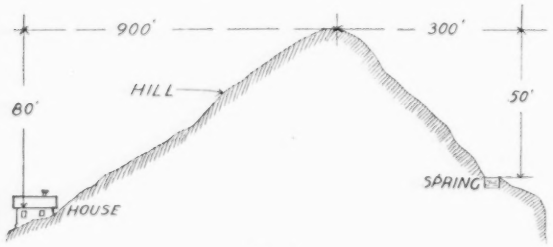


Fig. 1.

up over the hill and down to tanks set in the attics of the buildings.

If this cannot be done please give us a good plan for supplying these buildings with water from that spring.

The buildings will be lighted with electricity taken from the high tension lines of an interurban trolley system, the current being reduced by transformers to 110 or 220 volts for lighting purposes. This current can be used for pumping water, if pumps are necessary.

Pennsylvania. J. L.

It is impossible to siphon water over the hill without digging the trench over top of hill down about 25 feet deep, which seems to be impracticable.

Water cannot be lifted by siphonic action higher than 28 or 30 feet above the level of the spring. In fact 25 feet may be considered a maximum working height, if spring is less than, say, 1,000 feet above sea level. If it is higher than that elevation the working height of siphon would be correspondingly less because of the lesser atmospheric pressure due to altitude.

We think you should use an electric pump operated by an automatic switch. Conditions are very favorable for such an installation.

You can build a frost-proof housing over the spring, and set the pump in there. Build a cement concrete reservoir on the hill top but underground, covering same with a well insulated roof.

Run the discharge pipe from pump in a trench below frost, delivering into the reservoir below frost. Place a check valve on this line if discharge pipe delivers below water line

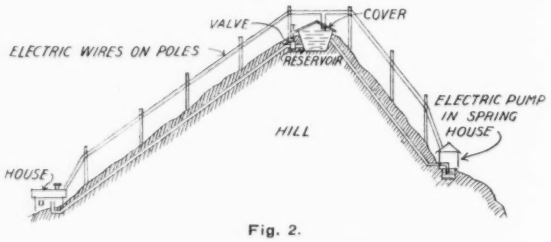


Fig. 2.

in reservoir. Place a gate valve and pressure relief valve on discharge line near pump.

Drop pump suction well down into spring, but not deep enough to draw mud or sand from bottom. Put a foot-valve and strainer on bottom of suction pipe.

From bottom of reservoir run a supply line down to the buildings in a trench below frost. Feed the buildings direct from this supply line, if it is large enough; or install pneumatic tanks in basements of buildings as a means of instantaneous supply and to overcome the resistance of the long line when a faucet is opened.

Furnish each pneumatic tank with the necessary water gauge, etc., also a hand air pump, if tanks are small. Pipe up from pneumatic tanks to buildings in ordinary manner.

Run electric wires over the hill to spring house connecting same to automatic switch at reservoir, which is operated by a ball float. Also connect wires on to pump motor, with

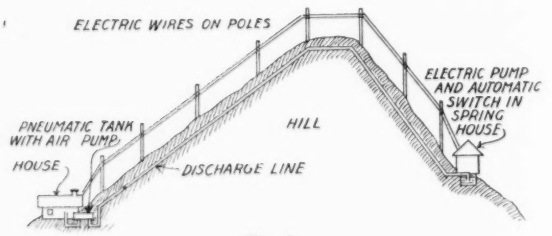


Fig. 3.

hand switch, fuses, automatic starter or rheostat, as may be recommended by the electrician of the railroad. Fig. 2 shows in a general way what we mean.

You can get along without the reservoir on top of hill. But we consider it good engineering to have a reservoir there in this case, as it gives a large body of water available for use any time the motor or pump may break down, or the current at railroad may be off through accident or otherwise.

If cement reservoir is omitted, the house pneumatic tanks should be larger, so as to hold at least a full day's supply, should pump become inoperative from any cause. This sys-

tem would necessitate the automatic switch being connected up to the discharge line at some convenient point and set to operate the pump by fluctuation of pressure in the line. Fig. 3 shows the general lay-out of such a system.

We cannot give you data regarding size of pump, size of pipe, or sizes of pneumatic tanks, as the requirements of the buildings are not known to us.

A STEAM HEATING SYSTEM IN A FACTORY.

Editor "Domestic Engineering":—We are sending you a blue print of a steam heating system for a factory building, and would like to ask you to look it over, and if

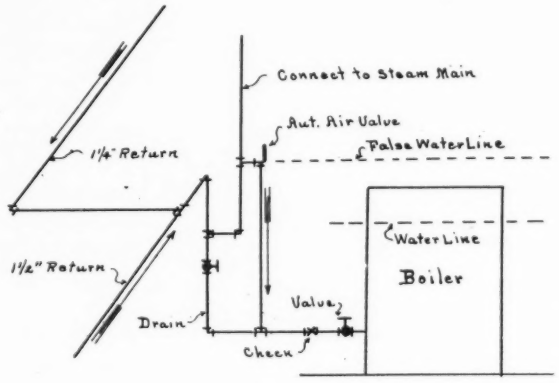


Fig. 1.

possible give us suggestions that will assist us in making the system satisfactory.

We would also like to know which would make the best job, a dry return with a false water line or a wet return? In the latter case we would have to make an excavation about 3 ft. deep

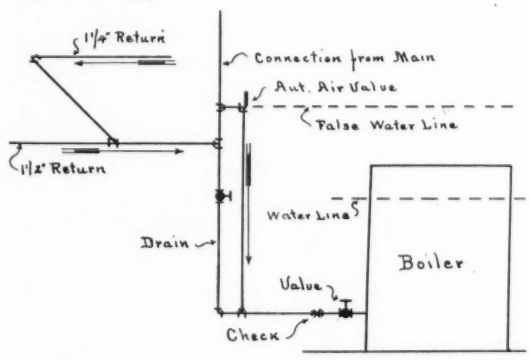


Fig. 2.

There is no cellar under the building except the boiler room.

As the blue print does not show the false water line, we are showing a rough sketch of same herewith.

Ohio. B. H. D.

The blue print submitted with the above communication shows an isometric drawing of the plan of a steam heating system for a factory. We do not show it as the drawing is of such a nature that the necessary reduction for reproduction will destroy its legibility.

The structural conditions of a building will, or should to a great extent, govern the character of the piping system to be installed for a heating apparatus. It is generally considered that a wet return system is superior to a dry return system for a building of this kind. Correspondent suggests the use of a loop to create a false water line and submits the sketch Fig. 1, to illustrate the method of piping the loop. We do not like the method shown and

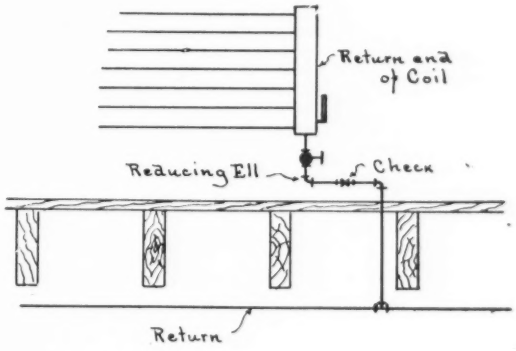


Fig. 3.

suggest that, if a false water line is to be used, it be created as shown by Fig. 2.

A dry return may be run in the space under the floor without extra excavating, and in this event all bleeders and returns from coils and radiators should be provided with a light weight horizontal swing check valve. This is an excellent method to use and has many advantages. The clapper of the check valve used should be very light and should hang in an almost vertical position, so that a very little weight of water against it will open the valve. The horizontal pipe, in which the check is placed, should be reduced one or two pipe sizes smaller than the return or drip connection. If there is any danger from freezing, the check should be placed above the floor, as shown by Fig. 3. It frequently happens that the space between the

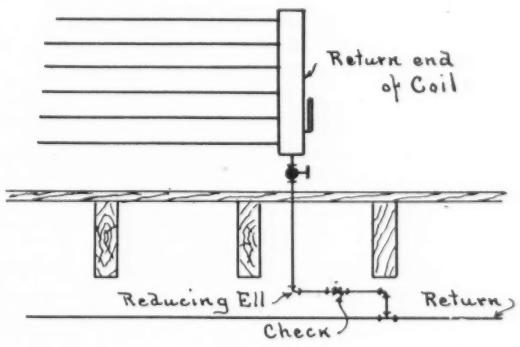


Fig. 4.

end of the coil and the floor is so small that the return must drop directly through the floor, and in this event the check may be placed below the floor, as illustrated by Fig. 4. If placed in this position, the pipe should be thoroughly and carefully covered.

Correspondent's attention is called to the style of boiler connections as shown on the blue print. Two 3-inch flows from the boiler are connected into the side of a 4-inch steam heater, and the main 4-inch riser is taken directly out of the top of the header without a swing joint to allow for expansion. It is better to take the main riser from the front end of the header by a double swing joint and to connect the equalizing pipe from the rear end of it.

(Continued on Page 272.)

FEATURING *the* IMPORTANCE *of* AIR MOISTENERS *in* HEATING CAMPAIGNS

Bigger Autumn Business Opportunities for Plumbing and Heating Contractors Who Push the Sale of Humidifiers in Their Respective Communities

THE opportune time for promoting the sale of humidifiers or air moisteners is at hand. The plumbing and heating contractor in his general drive for autumn business can emphasize the importance of humidity in health preservation, comfort and in fuel saving in home, office, school, hospital and factory, etc.

In order, however, to impress the advantages of sufficient indoor humidity, it is necessary that the contractor present certain definite selling arguments, which will be conclusive and admit of no controversy on the part of the house or property owner.

The relationship, which exists between health preservation and humidity, is indeed very intimate, and eminent medical

One Type of Humidifier or Air Moistener.

and health authorities are unanimous in the advocacy of sufficient indoor moisture.

The question of greater fuel conservation also enters into the campaign for the sale of humidifiers. Professor Wilson of Milwaukee, emphasizes this in a paper on "Atmospheric Moisture and Artificial Heating," as follows:

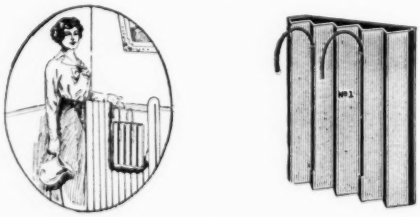
"We are wasting fuel from the unnecessarily high temperature we maintain. The waste is probably greater than is generally supposed. About 25 per cent of the cost of heating is expended in raising the temperature from 60 degrees to 70 degrees; so, if we can keep comfortable at a temperature of 65 degrees, we shall have saved at least 12½ per cent of the total cost of heating."

It is essential that the different talking points in favor of air moisteners should be formulated in positive and logical sequence.

Some of the principal selling arguments which will prove of practical assistance to the contractor are herewith enumerated:—

Dr. Wm. A. Evans, Health Editor, "Chicago Tribune," and Ex-Health Commissioner says: "According to medical authorities, the danger in winter time is that a person will go from the extreme dryness of the home out into the open air, or from the outside humid air into dry, hot rooms and thus force a violent adjustment of delicate mucous membranes and tissues. The violent adjustments gradually wear down the vitality of the tissues, which then become easy prey for various diseases. Our systems are profoundly affected unless something is done to give the air the moisture for which it is so greedy. In the treatment of inflammation of the mucous membranes, proper attention to these conditions (lack of humidity) will do more to cure a patient than all the medicine administered."

Chicago Health Department Bulletin: "Dry indoor air is the greatest cause of discomfort, the source of much ill-



Another Type of Air Moistener or Humidifier.

health, catarrh, colds, and other diseases of the mucous membranes, etc."

Dr. Henry M. Smith, Brooklyn Medical Society, says: "If our rooms contained more moisture we would live more comfortably at a lower temperature. The overheating is required because of the low relative humidity. Generally speaking, dry air is an excitant often causing sleeplessness and irritability accompanied by a drier skin and quickened pulse. Moist air is more of a depressant, producing quiet sleep and slower circulation of blood. After living in a room with lower temperature and proper relative humidity, no one will be satisfied with the other conditions."

Another talking point which should appeal to the house-owner's common sense is the fact that dry air causes plants to wither and die. It warps woodwork and loosens the joints of furniture; makes people more susceptible to colds, etc.

Strong emphasis can also be laid to the fact that moisture-laden air is nature's greatest heat-storing element, and that without moisture we cannot live. Point out also that a fixed standard of temperature for comfortable living rooms cannot be set without regard to moisture.

There are various types of humidifiers which the heating and plumbing contractor can introduce for steam and hot water radiators. Among these are humidifiers with radiator shields, and the regulation air moisteners, both of which are attached conveniently to the radiator, and into the reservoir of which is poured either hot or cold water.

In order to secure uniform indoor humidity, humidifiers or air moisteners are to be recommended for every radiator in the house, office, school, hospital and factory, etc. This is an essential talking point in the sale of these devices—for you can show that the combined evaporation of water from these humidifiers or air moisteners will insure the proper amount of humidity to give an even, healthful indoor temperature.

Winter is coming and indoor humidity is essential to health and comfort. Remember this and prepare now to increase your volume of autumn business by pushing the sale of air-moistening devices. Procced to create a demand for them in your community through personal interviews with house-owners and by convincing advertisements in your local newspaper.

The DAY BOOK *of the* BON TON DE LUX PLUMBING & HEATING CO.

Jerry Dolan's Record of the Interesting Happenings of the Day

(Continued from Page 236 in the November 9th Issue.)

November 9, 1918.

Our customer came in to pay for that closet bowl, and he was very much surprised to find that it was a washdown and not a syphon jet outfit that was in his house. He said that the plumber told him that he couldn't get the outfit with the name on it at the time, but that he was getting one that was just as good and was identical except for the name. That plumber is out of business now, so the customer has no come-back on anybody, but substitution and tricks like that in the past are things that the plumbers of today have to live down, and perhaps there are a few substituting trick artists at it now, that will be making grief for the masters of the future.

November 10, 1918.

Sunday. Washed the storm windows and got them ready to put on.

November 11, 1918.

We had a firm do a little electric job for us last week, and the bill came in this morning with the following note on it: "To save bookkeeping and attendant expense we offer 50 cents discount, if paid within ten days from date." The whole bill was only $2.55, so we sent them a check for $2.05 in a hurry. I don't know of any easier way to earn 50 cents than to take it in discounts. Come to think of it, almost every other business under the sun is now being conducted on a cash basis, and where they don't operate in that manner, they have certain fixed payment dates, and a fellow has to come across on those dates or get along without any new stock.

November 12, 1918.

A salesman was in this morning, and he told us that in one town, that he makes, the plumbers are doing repair work C. O. D., and that it is working out to the queen's taste. That's what all of us ought to do. Make repair jobs for the ordinary run of customers C. O. D., and when it is necessary to extend credit, give the customer a chance to make a few cents or dollars, depending upon the size of the bill, by paying promptly. This would apply in the case of real estate firms or agents, work done in places not occupied by the owner, and work of any considerable size.

November 13, 1918.

And another thing. There is a movement on foot to make salesmen out of the journeymen by having them look around, when they get on a job, and then report opportunities for the sale of new fixtures. If they are going to do the selling, a little experience collecting would keep a whole lot of them out of business for themselves, and, if they did get in, they would be the right kind of competition.

November 14, 1918.

In most things that we buy these days, the prices run along pretty much the same, but when we get away from the beaten track and into the lines that do not move very fast, we find some startling differences. Me and Hank was in the market for some stuff yesterday, and so we got out three or four catalogs and discount sheets and began figuring, and finally we found that one house wanted $27.20 for the bill of goods; another wanted $24.65, and the third one would duplicate the order for $18.44. That shows that it pays to do a little figuring. Those discount sheets that the jobbers issue are the real thing all right. A fellow can keep them up to date, and when anybody comes in and wants to buy something, with which you are not familiar, you can look up the price and give it to him in a hurry. The buying is pretty well taken care of, and there are now several price guides on the market that help take care of the selling, so if a fellow can only sell the stuff, he can make a little money.

November 15, 1918.

Jobbing house pay day again, but I'll bet the checks don't look like they did a few years ago. "These are the times, though," says Old Man Flanigan, "when you can find out whether a firm is doing business along right lines. If they are going along according to Hoyle, paying their supply house and labor bills, buying Liberty Bonds and Thrift Stamps, and donating to the War Chest, then you can bank on that they are all right, but if they have been doing a big volume of business and have been making the receipts from the job of today pay for the material used on the jobs of yesterday, then this surely is a time of reckoning for those birds, and when the jobs quit coming in, the padlock will snap on the door and Dun and Bradstreet will have to report another one missing." The Old Man has been watching this game for better than twenty-five years now, and he ought to have the right dope.

(To be Continued.)

General Gets in Wrong.

When General O'Neill, of Allentown, first went to Spartanburg, S. C., his train was three hours late. The negro escort appointed to receive him at the station had been dismissed. The general walked. Presently he was accosted by a sentry.

"Who is you?"

"General O'Neill."

"Well, you cut the buck and go up thereto headquarters to beat de debbil and see my captain and explain yousself. We's been waitin' three hours fer you."—"Los Angeles Times."

RAYMORE *and* COMPANY PLUMBING *and* HEATING SUPPLIES

The Story of a Plumbing Contractor, Who Was Finally Convinced That It Was Not Right of Him to Ask His Jobber To Be His Banker

By Daniel Louis Hanson, Author of "Moses Irons' Stories"

NATHANIEL RAYMORE was waiting in the little office of James Melton, the master plumber and heating fitter in Riverton-on-the-River. Mr. Melton was out but would be back shortly.

The case of James Melton, as revealed by his letter of the day before, also his attitude of mind, had been such that Mr. Raymore felt justified, even in the absence from the city of Phil Harton, to run up to Riverton-on-the-River and have a heart-to-heart talk with the master plumber.

It was a $286.23 statement that Melton had returned with a letter of protest: "I am always glad to get statements from you the first of the month so that I can check up, but to send with it such a letter as you did, is not at all called for, as I have done business with you for fifteen years past. You folks know that when I get money it is sent to you. Now why should you fire such a letter at me?" There was more to Melton's letter but simply a repetition of the first sentence or two. Melton was injured in feelings and didn't intend that Raymore & Co. should lose sight of that condition of his mind.

Mr. Raymore sent for the carbon copy of the letter which had so roiled Melton. It was a bit of business correspondence, of which too little has been sent to the trade by the supply house element. Had more of it gone out, it would have been better all round.

"In looking over the statement herewith sent you, and checking up your account for some time past, we are impressed with the fact that you are getting what amounts to four months'—occasionally five months'—time from us. Only $31.12 on this statement is less than seventy days. Now we would be glad to continue such a favor to you, were we able to do so, but collections in these war-times have to be made more closely than that. We owe it to ourselves, and we owe it to our country that money be turned over more rapidly than has been the case hitherto with us. Kindly remit so as to put the account on a sixty-day basis."

It was a business letter without hot air. And the principle laid down in it was one that Nathaniel Raymore had supposed to be a cardinal one with his establishment. Evidently there had been laxness, of which he had had no knowledge; when that credit man, Morse, returned from his vacation, he would be called on the carpet immediately. In the meantime it would be a good investment to run up the thirty-five miles to Riverton-on-the-River and see that Melton.

It was a prosperous-looking establishment that Mr. Raymore waited in; the show room, while not large, had up-to-date fixtures and arranged with some knowledge of effective salesmanship. The office had its little case of catalogs and price bulletins; also a net discount sheet, showing what practically every fixture and fitting should be sold at. No "refreshments to customers while we figure out the net on this three-fourths street ell" in Melton's office. The workshop was well arranged with its plainly marked bins and its tool racks; the brass goods were under lock and key. And here Raymore's ultimate test—the young woman bookkeeper had a sort of "selling ring" to her telephone conversations.

Yet James Melton was expecting—and taking—five months on open account from at least one of his supply houses!

Finally the master plumber arrived and gave but a cold hand to his visitor: "That was a devil of a letter I received from you yesterday morning—I guess Morse must be on his vacation!" was Mr. Melton's greeting.

"Mr. Morse is away on his vacation. I am surprised though that you should have received any correspondence out of the regular. Can I see the letter you object to?" Nathaniel Raymore had been long enough in the field to know the value of letting a grouch work itself out in the telling, as much as possible.

James Melton, glad of a listener, not only produced the letter, but also accompanied Mr. Raymore's perusal of it with a running comment on the ingratitude of the supply trade, generally, towards their profit-giving customers.

Mr. Raymore folded the letter upon finishing it and returned it to Melton: "I agree with you, Mr. Melton, that the letter should never have been sent,—that is, the conditions, which caused the letter to be written, should never have been allowed to grow up. I didn't, till yesterday, know that we were allowing over sixty days on any account. I am glad to say that we haven't given better time than that to many. You are among the very few, Mr. Melton. In the future there will be none enjoying over two months from date of invoice."

"Then you approve of that letter?" Melton almost gasped this last, for he had felt sure of the jobber's sympathy.

"No, because there should have been no necessity for its being sent. Now, let's get down to brass tacks, Mr. Melton. Why do you want four and five months on your bills?"

"Because I need the time. My money is slow in coming in, and who should carry me, if the supply man doesn't?"

"Your banker, Mr. Melton, your banker! Selling goods is one calling, lending money is another. And when you ask us to give you a day over our regular terms—goodness knows sixty days is a long time!—why you are yanking us against our will out of the merchant class into the banking

class. You insist that we lend you money without interest. What is the inevitable result? Why, as we can't lend money without interest any more than banks can, as money has a price just as pipe or fixtures, then we have to add that much to the price of our goods. But the unfortunate thing is that we add it on the prices to all, instead of only a few. You see the injustice of that don't you? But we have to charge for what we sell, whether it is pipe or the use of our money. Why, not long since we loaned you a lot of big pipe tools for that Albany job, and you paid rent for them without demur. Now why not for money?"

This evidently set Melton to thinking, so Mr. Raymore went on: "Now why don't you collect up your accounts so as to pay as you go, Mr. Melton? Your losses must be considerable because of slow collections?"

Melton looked at his bookkeeper, who replied for him: "About four and a half per cent last year."

"And that in a residential suburb! Why, Mr. Melton, there clear to me either. I stated my case plainly enough the time I tried to get the trade acceptances discounted—if he had felt at all friendly he could have made a suggestion that a plain note from me would have met with ready cash advance. But he did not—old Dobbs is a funny genius; he is giving free loans to some chaps in this town, for whom I wouldn't do an hour's work without cash in advance."

Nathaniel Raymore pondered a few minutes while Melton was answering the telephone:

"Have you ever done much work for Mr. Dobbs?" he asked when the plumber was at leisure again.

"Not much. He's a tight-wad living in that old mansion, facing the river, which the Dobbs family built two hundred years ago. Way back there before my day, someone stuck him for a high-legged tub, a marble lavatory encased in walnut, a closet that's a dream in its operation and an ark of a kitchen sink. He's sent for me a time or two to make some repairs."

"James Melton, glad of a listener, not only produced the letter, but also accompanied Mr. Raymore's perusal of it with a running comment on the ingratitude of the supply trade, generally, towards their profit-giving customers."

is only one cure for that—prompt collections! By the way, have you tried trade acceptances, on your largest accounts?"

"I did, and it didn't pan out. First the customers got sore, then after having secured one or two at that risk even, they were of no value to me except as acknowledgment of indebtedness to me. Oh, yes, I took them to the banker, but he said he couldn't be bothered with them; that the Federal Reserve Bank would only handle big stuff, such as between manufacturers and jobbers, and between jobbers and the retail trade. So I simply had made a customer or two sore and had no particular service from the acceptances. In fact, one dated at sixty days, has been lying in my safe for four months."

Nathaniel Raymore listened attentively to Melton's experience with trade acceptances; it differed from what he had hoped for—anything to speed up a master plumber's collections! And trade acceptances had seemed a promising medium.

"Well, I believe bankers can be found who will handle them. However, aren't you on good footing with your local banker so as to get short term loans with which to tide you over the monthly statement time?"

"I don't know that I am: and just why I am not, isn't

"He sent for you, eh? Did you ever try to sell him anything?"

"Sell old Dobbs!" and Melton laughed aloud. "I guess you don't know Mr. Dobbs, Mr. Raymore!"

"Well I don't, but he is a human being I take it? And being that he is liable to change his mind once in a while, but prefers to have some one help him in that process. If I were you, Mr. Melton, I would go to that same Dobbs and sell him the finest bathroom that any supply house has in stock. No, wait a minute! I wouldn't try, I'd just sell it to him. If you are going in on this trade extension campaign here in town, why not just open it with Mr. Dobbs? I'll wager most any amount against any odds that the bank president is just aching—has been for years past very likely—to be sold a decent plumbing and heating job for that old mansion."

"And I'd try the trade acceptance idea on him, eh?" Melton was amused at his own wit.

"That wouldn't hurt any, Melton. But here is the point; after having demonstrated your ability as a salesman on so hard an appearing subject as Mr. Dobbs—and he knows his reputation in that respect, of course—I am inclined to think that he will rate your ability as a general business man high

enough, so that your little notes of hand will draw cash through his window."

Melton caught the point immediately. "I get you—I get you! That isn't half bad as an idea! Dobbs has been holding off on credit because he hadn't seen any evidences of business ability on my part. That is, not enough. Not if I land him why I am all right! I'll land him, if I have to sit on his doorstep all night!"

* * *

Three weeks later Nathaniel Raymore received a letter from Riverton-on-the-River, which pleased him tremendously, so much so that he read it through three times before sending for Phil Harton. Then Harton had to hear it read, of course, which made four times for the Boss.

"Well, Mr. Raymore, I went after that Mr. Dobbs. The first time he did what they call camouflaging, but I never wilted—just came back at him the next day with some illustrations of pretty expensive fixtures. I had to come back at him several times, in fact, but somehow I got the idea that he was simply trying me out—seeing how much of a business-getter I really was. But I landed him as you will see from the enclosed order! Of course, I am sending it to you, for you worked up the order, and I ain't of the substituting breed. Now that we have started the trade extension campaign by landing the biggest job of the kind, why the rest will come easy.

"Tell that credit man of yours that he won't have any more trouble about accounts running over sixty days. Also that Mr. Dobbs looks sort of smilingly on trade acceptances. But I have some ideas along that line I want to talk over with Mr. Raymore next week, if he will phone me a date."

"His name is James Melton, of late a five-month account with us, my dear Phil." said Mr. Raymore as he laid the letter down. "This trade extension or replacement campaign is going to do more than replace old fixtures with new. It's going to replace old methods of doing business, of reaching out for jobs, of paying accounts—with new-fangled methods. Speed the cause all you can, Phil!"

November 20, 1918.—The annual meeting of the Central Supply Association, at Hotel Sherman in Chicago.

November 25, 26 and 27, 1918.—The annual convention of the National Housing Association, at Boston, Mass.

December 11 and 12, 1918.—The regular quarterly meeting of the National Association of Brass Manufacturers, in New York City.

January 14, 15 and 16, 1919.—The annual convention of Iowa Master Plumbers' Association, at Cedar Rapids, Iowa.

GOVERNMENT CONTRACTS TO BE AWARDED.

Supervising Architect James A. Wetmore, of the Treasury Department, Washington, D. C., will receive sealed proposals for Government work as follows:

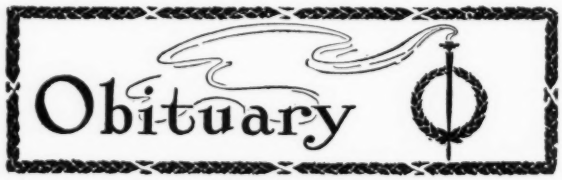
Until 3 p. m., November 21, 1918, for the construction, including plumbing and heating, of an ambulance house for the United States Marine Hospital at Stapleton, N. Y.

Until 3 p. m., November 25, 1918, for the construction, including plumbing and heating, of three frame hospital buildings, at the United States Marine Hospital, at San Francisco, Cal.

Until 3 p. m., November 29, 1918, for remodeling the annex to the United States postoffice at Brooklyn, N. Y., including plumbing and heating systems.

Until 3 p. m., December 10, 1918, for the construction, including plumbing and heating, of the United States postoffice and court house at Paris, Texas.

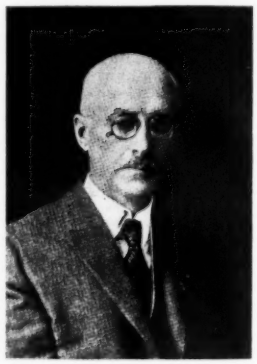
Drawings and specifications for these structures may be obtained from the custodians of the various sites or at the office of the supervising architect in Washington, D. C.



Henry F. Rosenow.

Henry F. Rosenow, manager of the heating department of Skinner Bros. Mfg. Co., of St. Louis, Mo., well known in the heating trade of that city, died the latter part of October, following an attack of typhoid-pneumonia.

O. W. Gleason.



The Late O. W. Gleason.

O. W. Gleason, sales representative for the Haines, Jones & Cadbury Co., of Philadelphia, Pa., died at his home in Washington, D. C., on Thursday, October 31st, in his 56th year. Mr. Gleason was for several years Eastern representative for the Peerless Selling Co., of Evansville, Ind., previous to 1913 when he accepted the position as technical expert on closet combinations with the Haines, Jones & Cadbury Co., in which connection he rendered service to the plumbing trade by designing several specialties. Mr. Gleason had an exceptionally large circle of friends among the master plumbers throughout the country owing to the fact that he was a confirmed convention goer to national and state gatherings. His sincerity and other sterling qualities won him many friends who will regret to learn of his death. His wife and a daughter survive him.

James H. Stokes.

James H. Stokes, of Anderson, Ind., who retired from the plumbing business four weeks ago, died at his home in that city, on Sunday, Ocober 27th, in his seventy-second year. Mr. Stokes had been engaged in the plumbing business in Anderson for more than forty years. Three sons survive him.

Oscar R. Cratty.

Oscar R. Cratty, manufacturers' agent at Pittsburgh, Pa., died at his home in Crafton, Pa., on Monday, October 28th, in his forty-ninth year. Mr. Cratty was at one time secretary of the Pittsburgh Master Plumbers' Association, and associated with William A. Fritch in the plumbing business. He was also, for a time, connected with the Kelly & Jones Co., of Pittsburgh. His wife and a daughter survive him.

You are helping the Government when you buy United States War Savings Stamps.

LEGAL QUESTIONNAIRE

*Will an Act of Apparent Insubordination by an Employe, With a Written Contract of Hire, Justify His Employer in Discharging Him?**

By "The Judge"

It Is Not Every Act of Apparent Insubordination by an Employe with a Written Contract of Hire, That Will Justify His Discharge.

Editor "Domestic Engineering":—Following the discharge by my firm of an employe, who had a written contract of employment for two years, we have been threatened with an action at law for damages because it is claimed that we did not have the right to discharge the man, who was a salesman, for the cause stated. The facts are that this salesman is one of the breezy, boisterous kind, who rushes into places in a slam-bang way as if what he is doing is the most important business that is going on. He frequently uses a door which is near my office and always slams it when he goes through. It got on my nerves and I have spoken to him several times. Finally, one day when I had a customer in my office discussing an important matter, he slammed the door and it irritated me greatly. I called the salesman into my office and asked him whether I had not requested him to be more careful with the door. He was excited and in a hurry and answered that he had a big deal on and that, if I wanted the door shut more quietly, I had better secure a door man to guard it.

My customer laughed, which irritated me further, and I discharged the salesman on the spot. Did I have a right to do so, under all the circumstances? Haverhill.

Answer:—The answer to your question would probably be that you had a right to discharge your salesman for insubordination. I say probably, because the final answer will depend upon whether your salesman was actually disrespectful in a matter within the scope of his employment. It is not every remark which may seem disrespectful that will entitle an employer to discharge his servant. Your customer, for instance, at the request of your salesman, if the case should reach a trial in court, might testify that he laughed simply because of the ready answer which your salesman had at the end of his tongue, and that to him the situation held no element of disrespect on the part of your salesman.

One of the cases, in your state, decided recently, says, concerning the duty of an employer to his servant and vice versa under similar facts: "The relation of master and servant imposes upon each, touching the work to be performed, the duty to be reasonably respectful to the other both in words and behavior, and to refrain from insolent or imperious conduct. Among the obligations resting upon the servant, as an implied term of the contract, is that he shall not be insubordinate but shall show just regard for the rights and person of the employer. The reciprocal obligation of the master is that he shall not be arrogant or excite resentment, or wantonly wound the feelings of his employes. But petty annoyances and trifling irritations are likely in many kinds of employment. Not every act of discourtesy or every slight disrespect justifies a termination of the relation.

"Insurbordination imports a wilful disregard of express or implied directions and refusal to obey reasonable orders. When this is established, it is such a breach of duty on the part of the servant as to warrant his discharge."

The facts in the above case were that the employe, who lived with his employer, with whom he had a written contract of employment for farm work, made a remark, which was hardly respectful, late in the evening when his employer was entertaining friends. The friends did not hear exactly what was said but did hear the scolding voice. As the comment of the court in the above case has a bearing on your facts, I will quote further:

"The words of the plaintiff (employe) while lacking in ordinary politeness did not amount to insubordination. They were a breach of courtesy, but did not indubitably manifest a disposition not to perform his work. No order respecting his work was disregarded. He was acting under some provocation due to the conduct of the defendant (his employer) which, although unintentional, might have been construed as designed to cause annoyance. The statement of the defendant (employer) that the employe must apologize was not an order as to work. It was rather the interpretation put by the defendant upon the gravity of the conduct of the plaintiff. The refusal of the employe to follow this suggestion was not necessarily insubordination. Both the demand and a refusal to apologize rested in part upon a construction of the motive which prompted the spoken words. Apparently, there was a misunderstanding in this respect by each party. Persons living under the conditions here disclosed, when innocent misunderstandings or other stress arise, may be obliged to exercise some forbearance toward each other.

"Doubtless a servant may be discharged rightly for disrespectful words or conduct. Hasty utterances of the nature here disclosed touching a single matter are not necessarily a breach of contract or a sufficient ground for ending it."

Where a written contract of employment is involved in a case, an employer cannot arbitrarily discharge his employe without cause, and an employe cannot sever his relations with his employer without equally good reasons. As a general proposition, any act of a servant which injures or has a tendency to injure his master's business, interests or reputation will justify his dismissal. Actual loss of business, interests or reputation are not necessary and it is sufficient if, from all the circumstances, it appears that the employer has been or is likely to be damaged by the act complained of. An employer is justified in discharging his salesman for

*Every Effort is made to the End that these Answers may be authoritative. However, we cannot assume any Responsibility because of the very Nature of the Service, which is rendered without a personal Interview.—Editor.

any breach of an express or implied condition of the contract of employment, but a substantial compliance with the terms of the contract is all that is required, and the refusal of a servant to perform services not provided for in the contract will not justify his discharge.

One of the things that is implied under a contract of employment, although it may not be specially mentioned, is the obligation of the servant to obey all lawful and reasonable commands of his master, and a refusal or neglect on the part of the servant to obey such commands which, under all the circumstances, amounts to insubordination, and is inconsistent with his duties to his master, is a sufficient ground for his dismissal.

In England, and in some American cases, it is held that the wilful disobedience of any lawful order of the master is good cause for discharge, even though there has been no resulting loss; but the better views seems to be that, to constitute just cause for discharge, the disobedience must be in regard to matters of such importance in the conduct of the business as reasonably require obedience and fulfillment. In such employments as involve a higher order of services and some degree of discretion and judgment, it would be unreasonable to regard skilled mechanics or other employes as subject to the whim and caprice of their employer or as deprived of all right of action to such a degree as to be liable to lose their places upon every omission to obey orders involving no serious consequences.

The motives which prompt an employer to discharge his servant are wholly immaterial, if any legal ground exists for such a discharge, and it is immaterial whether or not all or any of the grounds were known to the master when he discharged the servant. It is not necessary, either, to assign a reason for discharge, providing always that a valid reason actually exists, nor is an employer prevented, when called to account in court, from relying upon any valid reason for his action in causing the discharge of an employe, whether the employer knew of the reason at the time he discharged his employe, or not. However, a cause arising after the actual discharge cannot be urged as a defense to an action for breach of contract of hire.

As you do not state in your question any of the terms of your contract with your salesman, I cannot state whether you can rely upon other matters than the alleged insubordination in defending a suit which your salesman might bring against you. For instance, your contract may provide that the salesman must perform his services in a manner satisfactory to you. If so, the authorities are conflicting whether you are to be the sole judge of what is satisfactory or not; some courts rule that the employer is the sole judge, and others that he is not, and that he must be dissatisfied in good faith, which becomes then a question of fact for the jury.

There is an implied contract upon the part of a servant that he is competent to discharge the duties for which he is employed, and a breach of such a provision will warrant a discharge. But the failure of the servant to perform his work in an *absolutely* skillful manner, does, not, in the absence of a written provision affecting this matter, authorize his discharge if he performs his work in a *reasonably* skillful manner. I mention this possible loophole to you as it is always well to have several defenses, so that, if one fails you, another may save you.

While it has been held that to justify the discharge of a servant, he must have been guilty of some moral misconduct, wilful disobedience, or habitual neglect, the better view seems to be that any misconduct inconsistent with the relation of master and servant, will justify the master in terminating the contract of service at any time.

Your discharge of your salesman, it seems to me, could very well have been justifiable. You had requested him to be more careful, when he was using the door near your office; it prevented your conducting your business in reasonable quiet; and his action in slamming the door therefore tended to injure your business. It would also seem that the gist of your defense should be the injury to your business, rather than the disrespect showed you by the salesman. I say this because it might well happen that a jury would find that under all the circumstances, and taking into account the temperament of the salesman, his answer was not intended to place you in a foolish light before your customer, and that you, if you had not been nerved up by the importance of your conference with the customer, would have treated the situation more as a joke than a serious matter.

Be sure, in making your decision whether to fight or settle, to go over your written contract carefully and then consult your manager or other officer, for it may be that you have a good defense to any suit, which might be brought against you, because your salesman has not performed his contract satisfactorily. You will note from the decision, a part of which I have quoted above, that single instances of insubordination, unless they involve matters directly affecting the work to be done by the servant under the contract, are not always valid reasons for discharging a servant. I should therefore base my case, if you have no other defense, principally upon the fact that you had previously requested your salesman to be more careful and that he had not discontinued a practice, which in reality did affect the conduct of your business.

It is always well to remember, in the heat of an argument with an employe, or for that matter with any person with whom you have business relations, that the cold facts, when presented by a witness in court before a judge or jury may appear very different than they looked to the person who actually experienced the sensations that accompanied the facts.

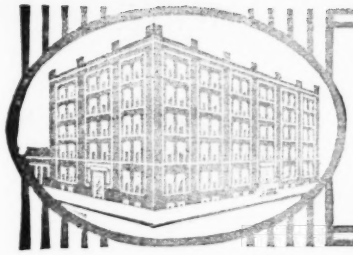
SAVING TIN IN SOLDER.

In discussing the possibilities of conserving tin in solder at the Milwaukee convention of the Metals Division of the American Institute of Mining Engineers, Milton Lissberger, of M. Lissberger & Son, Long Island City, N. Y., said that the greatest abuse of solder is in the use of high tin mixtures for filling metals. A mixture of 25 per cent tin and 75 per cent lead worked at the proper heat and with proper fluxing, he declared to be high enough for any filling purpose. This has been demonstrated in the practice of the oil canners, particularly the Standard Oil Co. The best means of conserving solder in can making, it was suggested, is to deepen all baths whether on line machinery or for hand dipping. Overheating of the baths should be avoided and the top of all baths covered with a protecting material, such as sal ammoniac, oil, charcoal or ash.

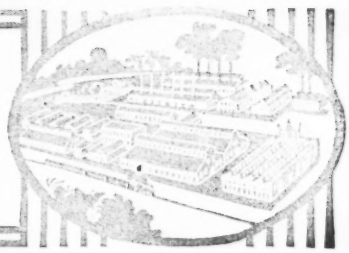
Mr. Lissberger emphasized the importance of reclaiming solder drosses. In some of the largest plants a great deal of dross is swept out as dirt. Mr. Lissberger gave as his opinion that for solder purposes a mixture of 46 per cent tin, and 54 per cent lead is the strongest that can be used, and particularly when ¼ to ½ per cent of antimony is added. The United States Bureau of Standards has suggested that the highest mixture of solder to be used should be 45 per cent tin, and 55 per cent lead.

New Way of Cutting Metal under Water.

A process has been invented in Europe for applying oxy-hydrogen gas jets to metals under water to cut them almost as well as if in the open air.



Among the Wholesalers and Manufacturers



TO CONFER ON QUESTION OF CREDITS.

The jobbers of plumbing and heating supplies in Cleveland, O., and Detroit, Mich., are planning to hold a meeting in the former city in the near future for the purpose of discussing ways and means of solving the problem of credits in the trade in their territories. It is expected that about fifty officers and representatives of the plumbing supply houses will attend the meeting. George D. McIlvaine, secretary of the National Pipe and Supplies Association, will act as chairman on this occasion.

DECLARES QUARTERLY DIVIDEND.

The American Radiator Co., of Chicago, has declared a dividend of 1¾ per cent on preferred stock to stockholders of record November 6th. The checks were mailed on Friday, November 15th. The company has also declared a dividend of 3 per cent on common stock payable on December 31st, to stockholders of record December 21st.

CONSTRUCTING NEW OFFICE BUILDING.

The H. B. Smith Co., of Westfield, Mass., is having a two-story office building erected in that city at a cost of $10,000.

HOFFMAN SPECIALTY CO. MOVES MAIN OFFICE TO NEW YORK CITY.

The Hoffman Specialty Co. has just moved its main office from Chicago to 512 Fifth Avenue, New York City, heretofore its Eastern office. The change was made in order to have the company's main office near its factory, enabling it to serve its customers' interests in the best possible manner. The Chicago office at 130 North Wells Street will be operated as a branch office in charge of A. S. Lindeblad.

WAR INDUSTRIES BOARD ANNOUNCES THE LIFTING OF MANY RESTRICTIONS ON BUILDING CONSTRUCTION AND INDUSTRIES.

Bernard M. Baruch, chairman of the War Industries Board, on last Tuesday, announced the lifting of many of the restrictions, which were placed on building construction and industries during the war.

Mr. Baruch's announcement follows herewith in part:

"The War Industries Board began today (November 12th) a modification of the restrictions whereby it has controlled American industry in the interest of the Nation's war program.

"It will be the policy of the board gradually to lift various restrictions and curtailments, with the view of bringing about a return to normal conditions.

"In the modification of the curtailments imposed on the manufacture of certain commodities the board has adopted the method of reversing the processes of the priorities committee, and there is now announced a list of the commodities in respect to which the curtailments are to be modified."

Under a circular issued by the priorities division of the War Industries Board construction projects falling within the following classifications are approved, and no permits or licenses will be required therefor from the non-war construction section hereafter:

"1. Construction projects approved in writing by the facilities division of the War Industries Board.

Can Build Farm Houses.

"2. All farm and ranch buildings, structures, or improvements.

"3. All buildings, structures, roadways, plant facilities, or other construction projects of every nature whatsoever, undertaken by the United States Railroad Administration or by any rail or water transportation company, organization, or utility (whether or not under the direction of such administration), or by the American Railway Express Co., or by the owner or operator of any telegraph or telephone line.

"4. The construction, maintenance, improvement or development, by federal, state, or municipal authorities, of highways, roads, boulevards, bridges, streets, parks and playgrounds.

Can Construct Water Supply and Sewer Systems.

"5. The construction, extension, improvement, maintenance, or repair of any public utility, including water supply systems, sewer systems, light and power facilities, and street and interurban railways.

"6. The construction, extension, or repairs of all irrigation and drainage projects.

"7. Construction projects connected with the extension, expansion, or development of mines or connected with the production and refining of mineral oils and of natural gas.

"8. The construction, alterations, or extensions of, or repairs or additions to, plants engaged principally in producing, milling, refining, preserving, refrigerating, or storing foods and feeds.

Can Build Churches and Hospitals, Not Costing More Than $25,000.

"9. The construction of new, or the alterations or extensions of existing, school houses, churches, hospitals, and federal, state, or municipal buildings, involving a cost not exceeding $25,000.

Permits Other Buildings, Not Costing More Than $10,000.

"10. The construction of new buildings not embraced in any of the foregoing classifications, or repairs on buildings involving a cost not exceeding $10,000.

"11. The construction of new building or structures not embraced in any of the foregoing classifications, or repairs or extension, involving a cost not exceeding $25,000, when approved by the State Council of Defense.

"12. Buildings begun prior to September 3, 1918, where a substantial portion of the building has already been constructed."

How Industries Are Helped.

Where an industry for the last four months of 1918 has been curtailed 25 per cent, such curtailment is changed to 12½ per cent for such period; where it has been curtailed 40 per cent, the curtailment is changed to 20 per cent, and where it has been curtailed 50 per cent, the curtailment is changed to 25 per cent.

SEASON'S FINAL TOURNAMENT AND ANNUAL MEETING OF THE N. E. M. P. GOLF ASSOCIATION.

With an all-day tournament at the Wollaston Golf Club, a luncheon at noontime, a dinner at night, followed by the business session, the annual meeting of the New England Metal Products Golf Association was held on Wednesday, November 6th, closing its second season. The day was far too short for the amount of playing and business, which was crowded into it, and as a result darkness came before the afternoon round of 18 holes could be finished, consequently no scores were counted in the afternoon play.

In the morning the members contended with unusual weather conditions, and the strong wind prevented high scores, although the showing was much better than that made through the dense fog of the preceding matches at the Brae Burn Country Club.

Three special matches had been arranged: Putting, driving and approaching; but the early darkness prevented them from being held, and the prizes for the events, therefore, went to the three best net scores. In addition, the president's cup, given by Robert E. Sargent, of Boston, and a gold knife presented by Charles H. Ely, also of Boston, were awarded the two best net scorers.

Playing was at 18 holes, handicap medal play and the morning results, the only scores counted, were as follows:

	Gross.	Handicap.	Net
W. H. Thayer	81	4	77
George H. Ball	86	8	78
E. C. Chase	87	5	82
W. H. Hunter	87	3	84
W. A. Griffith	103	18	85
Chas. H. Ely	105	20	85
W. P. Hosmer	100	14	86
H. L. Doten	98	12	86
George A. Murphy	90	3	87
E. T. Foote	99	12	87
S. B. Reed	101	14	87
J. S. Nicholl	105	16	89
T. W. Little	106	16	90
D. W. Wade	102	12	90
W. F. Stearns	111	18	93
M. R. Titus	112	15	97
R. E. Sargent	113	16	97
G. F. Uhler	123	22	101

After one of the dinners, for which the club is famed, the members assembled in business session. The re-election of President Robert E. Sargent, of Boston, and Secretary John S. Nicholl, of Cambridge, Mass., was unanimous, on report of the nominating committee, which consisted of Walter L. Griffith, of Providence, R. I.; W. F. Stearns, of Boston, and W. H. Thayer, of Boston.

These are the only officers elected. To assist them in conducting the organization, the club decided to have three committees appointed, as follows:

Membership:—H. D. Nickerson, of Providence, R. I.; W. H. Hunter, of Boston, and George A. Murphy, also of Boston.

To prepare By-laws:—S. B. Reed, of Boston (an associate member); E. T. Foote, of Boston, and W. H. Thayer, of Boston.

Mid-year Dinner:—C. A. Pastene, H. L. Doten, D. W. Wade, and E. T. Foote; all of Boston.

The date for the mid-year dinner has not been decided upon, but will probably be held some time in February.

NEW BUILDING CONSTRUCTION.

The most notable contracts awarded last week for the construction of new buildings, as recorded by the "American Contractor," were as follows:

Government Contracts.

$5,000,000 on Engineer's Training Camp, at Fort Leavenworth, Kans.

$1,500,000 plant at Williamsburg, Va.

$115,000 additional construction at Watervliet Arsenal, Mobile, Ala.

$1,924,923 additional buildings at Camp Kearney, Calif.

$3,725,000, barracks and quarters at various locations.

$500,000, veterinary hospital building, Camp Jackson, S. C.

$2,000,000, additions to camp, San Antonio, Texas.

$444,500, marine hospital, St. Louis, Mo.

$346,500, marine hospital, Wilmington, N. C.

$175,000, marine hospital, Louisville, Ky.

$225,000, barracks, New London, Conn.

$175,000, barracks, New London, Conn.

$600,000, aerial bombing school, Miami, Fla.

$175,000, hospital, West Baden, Ind.

$100,000, hospital, Hyde Park, Cincinnati, Ohio.

$175,000, "A" power plant, Brooklyn, N. Y.

$250,000, marine hospital, Washington, D. C.

$3,725,000, barracks quarters, various locations.

$101,000, central steam heating plant, Fort Sam Houston, Texas.

$125,000, officers' house and administration, Quantico, Va.

Private Work.

$250,000—100 residences, Baldwin Bros., Erie, Pa.

$225,000, moving picture theater, Freel Trust Co., Brooklyn, N. Y.

$100,000, loft building, Robert Hoe Estate Co., New York, N. Y.

$250,000, temporary shed, Harding Cream Co., Omaha, Neb.

$4,000,000, electric plant, Consolidated Gas & Electric Light & Power Co., Westport, Md.

$400,000—134 residences, Frank Novak Realty Co., Baltimore, Md.

$475,000, boiler house, Louisville Water Co., Louisville, Ky.

$100,000, housing, Niles Development Co., Niles, Mich.

$9,000,000, twenty-six stations at various locations.

Contemplated Government Work.

$250,000, marine hospital building, Boston, Mass.

$3,000,000, housing, Phillipsburg, N. J.

$175,000, hospital building, Rochester, N. Y.

$165,000, hangars, pavement and marine railway, Hampton Roads, Va.

$1,500,000, emergency hospital building, Norfolk, Va.

$100,000, liberty theater and veterinary hospital, Camp Mead, Md.

$225,000, machine shop, dispensary, storehouse, magazine, power house and two office buildings, Indian Head, Md.

$250,000, laboratory building, Washington, D. C.

$2,632,257, cantonment at Fort Benjamin Harrison, Ind.

$551,629, five vehicle storage buildings, Rock Island Arsenal.

$554,000, barracks, officers' quarters, storehouses, medical buildings, mess and administration buildings, at Galveston, Texas.

$118,400, six additional hospital wards, Camp Abraham, Eustis, Va.

$167,670, additional barracks for Chemical Warfare Service, Willoughby, Ohio.

$219,795, additional accommodations at coast defense, of San Diego, Cal.

$312,579, additional hospital facilities at tuberculosis hospital, Otisville, N. Y.

$140,000, new buildings and additions at Fort Sill, Okla

$178,915, remodeling government buildings and modifications in the railroad yards at Hoboken, N. J.

$55,700, additional buildings at Camp Meigs, Washington, D. C.

$47,500, additions to warehouses, at Camp Forest, Ga.

$36,000, six additional warehouses at the Presidio of San Francisco, Cal.

$14,125, additions, at Camp Sevier, S. C.

$76,800, alterations, at Raritan Arsenal, Matuchen, N. J.

$225,000, barracks and mess hall, New London, Conn.

$175,000, barracks, New London, Conn.

MORE CONSULS NEEDED FOR OUR MERCHANT MARINE TO AID OUR FOREIGN TRADE.

Our merchant marine is rapidly outgrowing our consular service, according to Edward N. Hurley, chairman of the United States Shipping Board, who urges that steps be taken immediately to provide facilities abroad for handling the millions of tons of shipping which will soon be afloat under the American flag. Mr. Hurley has made a study of this subject in connection with the development of American merchant marine and lays the facts before the nation so that intelligent public opinion may guide Congress when appropriations for the consular service are made this winter.

A story is told by an American consul who served recently at a Spanish port. One of his agents from another port visited him.

"Have you ever cleared a ship flying the American flag?" asked the consul of the agent.

"No, I haven't," was the reply, "and if a ship had to be cleared, I wouldn't know how to do it."

At Queenstown, Ireland, one of the greatest ports of call in the world, no vessel flying the American flag had touched there in more than nine years until early in 1915, when war and shipping shortage began to take American vessels overseas. This is true of many other great ports abroad and illustrates the shipping decadence which is now being remedied.

Uncle Sam expects to have 25,000,000 tons of merchant shipping within two years. Every ton that can be delivered now goes into the service to France. If our present tonnage were at once scattered over the world trade routes, the consular service would be inadequate to handle our ships. There would simply not be enough men in the consulates, and they would also work against handicaps of obsolete shipping regulations, and in many cases lack of experience.

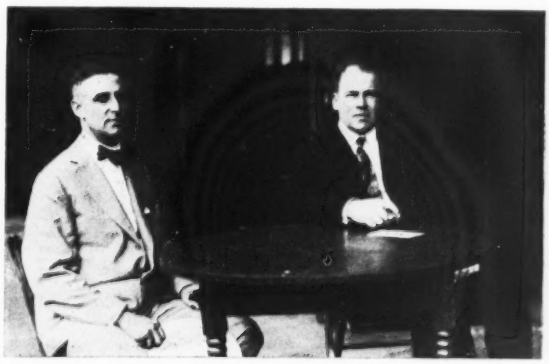
"There is no question about the high character of our consular service," says Mr. Hurley. "We have some splendid officials abroad, men who work for Uncle Sam at salaries far below what they might secure tomorrow by leaving the service and entering private employ. There are not enough of them and they are not justly compensated. Several consuls have died or broken down in harness the past year under strain of overwork imposed upon them by war conditions.

"We need more consuls and larger consular staffs. We need them today to carry on the increased burden of work. If we do not provide them today and prepare for the great growth in our merchant marine and trade I fear that we shall suffer a serious breakdown. The Department of State has work for fully fifty additional men right now, and if Congress authorized such an extension of service, would find the men and send them abroad immediately. Unless Congress meets this emergency both the Department of State and the United States Shipping Board face the danger of public criticism for inadequate service. These departments will really be blameless, but criticisms will fall upon them nevertheless."

B. W. McClymont, of the Penberthy Injector Co., Detroit, Mich., visited Chicago last week.

J. L. Stulsaft, manufacturers' agent in New York City, passed through Chicago this week on a trip to the Pacific Coast.

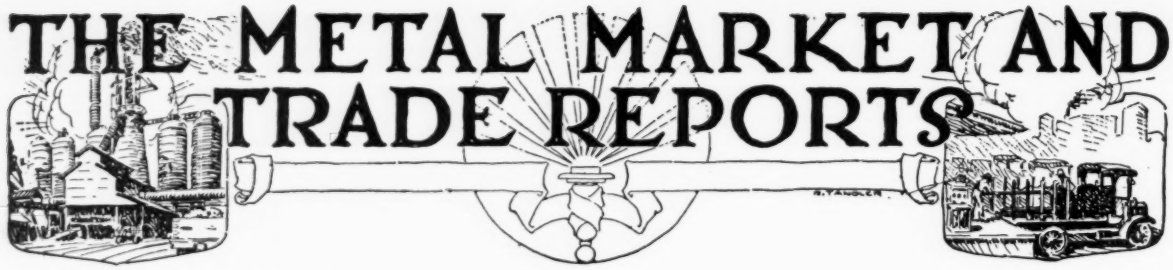
J. H. Newport, president of the Newport Boiler Co., of Chicago, is optimistic regarding the resumption of business and industrial activity. "The indications are," says he, "that we will have a very rapid resumption of business as evidenced by the reports from our different agencies. We are getting ready for a bigger volume of business."



F. A. Lempke and Robert Thompson, Manager and Representative, respectively, of the Humphrey Co., Kalamazoo, Mich. —From "Domestic Engineering" Photo, taken at the St. Louis Convention of the National Association of Master Plumbers.

Captain Wm. C. Groeniger, in charge of engineering work for the American Red Cross, at Jerusalem, Palestine, under date of October 5th, writes "Domestic Engineering" as follows: "We have been here since the middle of June and are doing great work. We have placed half a dozen buildings in sanitary condition and made them fit for human habitation. This city with its many old memories from Biblical times is using many different methods to secure and handle water." Captain Groeniger, who was recently re-elected president of the American Society of Sanitary Engineering, also sends greetings to all the members of this organization.

THE METAL MARKET AND TRADE REPORTS



Steel and Iron.

Radical readjustment of the steel business is not looked for by those in authority. War contracts are to run along for some time after the signing of the armistice and arrangements are to be made for the release and allocation to peace consumers of materials that may be involved in the cancellation of contracts. It now seems certain that the War Industries Board and other Government war agencies are to continue during the transition period, and restrictions now in force will be modified by degrees until a free market is restored. Presentation of the armistice terms and their acceptance by Germany have laid stress on the question of cancellation of war contracts. During the earlier stage of the discussions, rumors of cancellation were current, but no cancellations have been authoritatively reported as yet. Some orders that would have been allocated have been held up for the time being, but the demand for completion of business already placed is unabated. The United States Steel Corporation reported unfilled tonnage on its books as of October 31st, as of 8,353,293 tons, which is a slight decrease over the amount reported for September 30th.

No important developments in pig iron were reported last week. New business for delivery over the first half of 1919 has been light, as activity seems to be of lesser proportions in the East than in the western trading centers, where buyers and sellers are not so subject to the disposition to defer entering into commitments on the ground of war uncertainties. A difference of opinion exists as to the probable effect of the termination of the war upon the iron trade, but it seems to be generally felt that demand will keep up and that prices will be maintained. It is pointed out that production is well taken care of for some months to come by business already placed. Output during October was satisfactory in view of the prevalence of influenza, the daily average being but slightly below that of September. The greatest trouble at present is in the southern states where a shortage of labor and a lack of good coke is hampering the output considerably. Prices are based upon shipment from Pittsburgh, Birmingham or Buffalo. The base price on No. 2 foundry is $34 f. o. b. furnace, and standard Bessemer $35 f. o. b. furnace. These prices are subject to the following changes from previous delivery prices: (a) Pig iron produced in Virginia, Tennessee and Birmingham districts and south of the Ohio and Potomac Rivers, including St. Louis, Mo., but not those furnaces bordering upon the Ohio River, shall be sold on the basis of f. o. b. Birmingham. (b) Iron from furnaces located east of the Allegheny Mountains and north of the Potomac River will be sold on the basis of f. o. b. Pittsburgh. (c) Iron from all other producing districts shall be sold on the basis of f. o. b. furnace.

Copper.

The copper market was quiet all week and interest was centered almost entirely on the developments of the armistice. The outlook after the war is uncertain and subject to varying estimates, although continuation of Government control is counted upon to carry the industry safely through the transition period. Demand is expected to be heavy after the fighting, but on the other hand, production has been so largely increased during the past four years that the supply will be far in excess of prewar consumption, if operations are maintained on the present basis. Prices are as follows: 26 cents per pound for carload lots and 27.30 cents for lesser amounts.

Tin.

The introduction of the Government regulations has virtually suspended a free market in tin, and trading was reduced to a minimum with prices nominally from 74 to 76 cents, according to grade. Importation and distribution has been centered in the hands of the United States Steel Products Co., and other importers are unable to obtain licenses to bring supplies into the country.

Lead.

There is nothing new to report in lead. Prices and distribution are controlled by the Lead Distribution Committee, which is striving for the best results from a supply that is hardly adequate. Prices are 8.05 cents for New York delivery and 7.75 cents for East St. Louis delivery.

Spelter.

The spelter market is very dull, business during the last few days being negligible and the trading weak. Consumers are holding off in the belief that they will be able to fill their requirements at lower prices in the near future. Prices are Prime Western, New York delivery, spot, 8.90 cents, and East St. Louis delivery 8.40 cents.

Other Metals.

Quotations on other metals in New York are as follows:

Aluminum (in 100-pound lots)	49 cents per lb.
Antimony, Chinese and Japanese	16 cents per lb.
Solder, No. 1	49 cents per lb.

New York Old Metal Market.

The following prices are current for old metals:

	Buying.	Selling.
Copper, heavy	21 to 22 cents	23½ cents
Copper, light	20 to 21 cents	23 cents
Brass, heavy	12 to 12½ cents	13½ cents
Brass, light	10 to 11 cents	12 cents
Brass turnings	12 to 12½ cents	13½ cents
Brass clippings	14½ to 15½ cents	16¼ cents
Tea lead	5 to 6 cents	7 cents
Aluminum clippings	28 to 29 cents	30 cents
Solder joints	14½ to 15 cents	16 cents
Lead, heavy	7 to 7¼ cents	7½ cents
Cocks and faucets	18½ to 19 cents	20 cents
Mixed babbitt	8 to 8¾ cents	9½ cents

Chicago Old Metal Market.

Chicago wholesale dealers' prices are nominally as follows:

	Buying.	Selling.
Heavy yellow brass	11½ to 12½ cents	13½ cents
Brass, light	8½ to 9½ cents	10½ cents
Brass, medium	9½ to 10½ cents	11½ cents

Brass clippings	13 to 14 cents	15 cents
Red brass	19 to 20 cents	21 cents
Cocks and faucets	17 to 18 cents	19 cents
Copper, heavy	23 to 23½ cents	24½ cents
Lead, heavy	6¾ to 7 cents	7½ cents
Tea lead	5 to 5½ cents	6 cents
Lead dross	4½ to 5 cents	6 cents
Solder joints	13 to 14 cents	15 cents
Old iron pipe, per ton	$24.00	$25.00

The Pipe Market.

No changes were announced in the pipe market during the past week.

Quotations on less than car lots of full weight steel pipe remain as follows:

	Butt Weld Blk.	Butt Weld Galv.	Lap Weld Blk.	Lap Weld Galv.
⅛ to ⅜ inch	37	12	....	....
½ inch	40	27	....	....
¾ to 3 inch	43	31	....	....
2 inch	....	....	37	25
2½ to 6 inch	....	....	39	28
7 to 12 inch	....	....	37	25
12 to 14 inch	....	....	28	....
15 inch	....	....	25	....

The quotations apply to all shipments from stock, regardless of quantity.

On extra strong and double extra strong steel pipe in less than car lots, quotations are as follows:

	Extra Strong Plain Ends Butt Weld Blk.	Extra Strong Plain Ends Butt Weld Galv.	Extra Strong Plain Ends Lap Weld Blk.	Extra Strong Plain Ends Lap Weld Galv.	Double Extra Strong Plain Ends Butt Weld Blk.	Double Extra Strong Plain Ends Butt Weld Galv.	Double Extra Strong Plain Ends Lap Weld Blk.	Double Extra Strong Plain Ends Lap Weld Galv.
⅛, ¼ and ⅜ inch	33	17	....	....	....	....	....	....
½ inch	37	26	....	....	29	20	....	....
¾ to 1½ inch	41	30	....	....	32	23	....	....
2 to 2½ inch	42	31	....	....	34	25	....	....
3 inch	42	31	....	....	....	....	....	....
2 inch	....	....	35	25	....	....	27	19
2½ to 4 inch	....	....	37	27	....	....	29	21
4½ to 6 inch	....	....	36	26	....	....	28	20
7 to 8 inch	....	....	33	21	....	....	24	12
9 to 12 inch	....	....	28	16	....	....	....	....

With threads only, the basing discount is 1 and 1½ points lower. With threads and coupling the basing discount is 3 points lower. The quotations apply to all quantities less than car lots.

Quotations on full weight genuine iron pipe, in less than car lots, are as follows:

	Butt Weld Blk.	Butt Weld Galv.	Lap Weld Blk.	Lap Weld Galv.
⅛ and ¼ inch	14	+11	....	....
⅜ inch	15	+10	....	....
½ inch	19	2	....	....
¾ and 1 inch	24	9	....	....
1¼ inch	24	9	8	+7
1½ inch	24	9	16	3
2 inch	....	....	17	4
2½ to 6 inch	....	....	19	7
7 to 12 inch	....	....	16	4

These quotations are f. o. b. Pittsburgh, and apply to all shipments from stock, regardless of quantity.

On extra strong and double extra strong genuine wrought iron pipe, with plain ends, and in less than car lots, the quotations are as follows:

	Extra Strong Butt Weld Blk.	Extra Strong Butt Weld Galv.	Extra Strong Lap Weld Blk.	Extra Strong Lap Weld Galv.	Double Extra Strong Butt Weld Blk.	Double Extra Strong Butt Weld Galv.	Double Extra Strong Lap Weld Blk.	Double Extra Strong Lap Weld Galv.
⅛ to ⅜ inch	13	+ 3	....	....	....	....	....	....
½ inch	18	+ 6	....	....	6	+6	....	....
¾ and 1 inch	24	10	....	....	11	+1	....	....
1¼ inch	24	10	9	+6	11	+1	....	....
1½ inch	24	10	16	+3	11	+1	6	+6
2 inch	....	....	18	+6	....	....	6	+6
2½ to 4 inch	....	....	20	+9	....	....	8	+1
4½ to 6 inch	....	....	19	+8	....	....	7	+2
7 to 8 inch	....	....	11	List	....	....	....	....
9 to 12 inch	....	....	7	+5	....	....	....	....

These retail prices are f. o. b. Pittsburgh, and apply to all quantities except in car lots. With threads only, the basing discount is 1½ points lower. With threads and couplings, the basing discount is 3 points lower.

To ascertain the price in your city, deduct the proper less-than-carload freight rate from Pittsburgh to that city. Example: Base price on ¾-inch black steel pipe is 43 per cent, Pittsburgh, the less-than-carload rate to Patson is 17 cents, and the price, therefore, freight allowed to Patson, 41.3 per cent; on galvanized, 29.3 per cent. All other sizes to be figured on a comparative basis.

THE IMPORTATION AND PRODUCTION OF TIN IN 1917.

The metallic tin estimated as recoverable from ore of domestic origin mined in 1917 was 90 short tons, a decrease of 50 short tons from the output of 1916. As in recent years, the bulk of the tin bearing concentrate was obtained by dredges in Alaska, whose working season is limited by climatic conditions to less than 100 days a year. Part of the concentrate was shipped from Seattle to Singapore to be smelted and part was sent to the smelter at Perth Amboy, N. J., writes Adolph Knopf, of the United States Geological Survey.

The tin imported in 1917 as metal and metal in concentrate reached the record quantity of 77,866 short tons, or 57 per cent of the world's output for the year. The metal imported and entered for consumption was 72,166 short tons, and the domestic smelter output was 6,000 tons. The total supply of new tin available for consumption was, therefore, 78,000 tons. It is estimated that an additional 17,500 tons of tin becomes available by recovery from drosses and waste metals.

The unprecedentedly high prices of tin that prevailed during the latter part of 1917 and that still prevail have stimulated interest in the deposits of tin ore in the United States. The known deposits are unfortunately small in number, and but few of these are commercially promising. Governmental stimulation, therefore, is not likely to add significantly to the domestic supply of tin. It is not probable that the country will achieve in 1918 an output much in excess of 200 tons of metallic tin from ores of domestic origin. The largest amount heretofore produced in any one year was 140 tons, or 0.2 per cent of the imports for that year.

The total quantity of tin produced from domestic ore in the United States, exclusive of Alaska, since the beginning of tin mining is 300 tons. Of this output the largest single item is the 135 tons produced in 1891 and 1892 by the Cajalco mine, in southern California at a time when tin was at one-fourth its present price.

WOLFRAMITE IN SWEDEN.

The "Scandinavian Shipping Gazette" predicts that Sweden may become independent of other countries as regards wolfram, so important in the manufacture of the finer kinds of steel. Stockholms Superfosfat Co. has begun to exploit large and rich deposits of wolframite and scheelite near Yxsjo in Bergslagen, and there are great hopes that there will be sufficient to supply all Sweden's needs, which are estimated at 20 tons a year. Since 1916 no wolfram has been imported to Sweden and the metal has not previously been worked in Sweden. Big deposits of ochre have been found at Bratteborg in Smaaland.

Buy United States War Savings Stamps.

"SE

WISECO TRADE MARK EST. 1877 INC. INC. 1912

Lava

A Pioneer Trap of th
That Can be Depended

THE value of any piece of P
wearing quality. No matt
be on the surface, unless it
and properly constructed, it will

WISECO Traps, as well as all the other pl
sacrificing design or neat appearance. The

The SENECA is a seamless, non-syphoning
perfectly smooth inside as well as outside, so
up as is common with a cast trap. The tubing
seat on waste.

While WISECO Plumbers' Brass Products ar
does not prohibit their use on any installation.
high standard and is guaranteed free from a

Your jobber is a

W.S.S.
WAR SAVINGS STAMPS
ISSUED BY THE
UNITED STATES
GOVERNMENT

Style "P" No. 1242 furnished regular with 2¾" 14 Gauge, Wrought P. O. Plug, 6" Slip Joint, Cast Nuts, Heavy 3" .017 Flange.

12" Center Inlet to end of wall tube.

J.B. WISE, In

Manufacturers of Plu

NECA"

vatory Trap

WISECO TRADE MARK EST. 1877 INC. 1912 INC.

f the Famous WISECO Line
ded Upon for Enduring Service

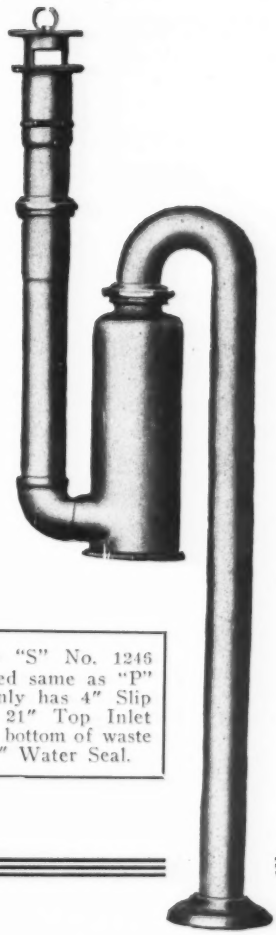
of Plumbers' Brass Goods is measured by its matter how good-looking a lavatory trap may ess it is made of the right kind of materials will not stand up for satisfactory service.

her plumbing fixtures, are built strong and sturdy without . They wear as good as they look.

oning trap made of extra heavy drawn brass. It is finished ide, so that lint, hair or other foreign matter will not clog it tubing is 1¼" diameter, No. 18 gauge. Inlet 1¼". Ground

lucts are of a superior quality made to last a lifetime, the price llation. Every WISECO fixture must conform to a certain from all mechanical or other defects.

is a WISECO Representative.



Style "S" No. 1246 furnished same as "P" trap, only has 4" Slip Joint. 21" Top Inlet bend to bottom of waste tube. 7" Water Seal.

Inc. Watertown, N.Y.

of Plumbers' Sanitary Brass Goods

AMONG THE PLUMBING AND HEATING CONTRACTORS

Illinois

Chicago and Vicinity.

The Graves Heating Co., of 162 North Desplaines Street, has been awarded the contract for the installation of a modern heating system in a store, restaurant and Chinese club, to be erected at a cost of $40,000, at Twenty-second Street and Wentworth Avenue.

J. J. Daly, of 408 North Wells Street, will install modern plumbing in a machine shop, to be erected at a cost of $75,000, at 3800-3850 South Racine Avenue.

Samuel Kersten, of 554 West Jackson Boulevard, has secured the contract to remodel the plumbing and heating systems in an office building at 2700 South Sacramento Avenue.

Riordan Bros., of 3523 Ogden Avenue, have been awarded the contract for the installation of the plumbing system in a motor truck repair shop at 1640-1644 South Dearborn Street.

Mortimer & Ryan, of 25 East Jackson Boulevard, will install the plumbing in a new $6,000 toilet and locker building at 680 North Sacramento Avenue.

C. W. Johnson, of 644 Washington Boulevard, has been awarded the contract to remodel the heating system in the Woodlawn branch library building on Kimbark Avenue, near Sixty-third Street. Estimated cost of remodeling to be $1,000.

Charles Bieger, of 110 North Franklin Street, will install the plumbing system in a $4,000 addition to a storage building at 2025-2027 West North Avenue.

George H. Kirk, of 6711 Wentworth Avenue, has secured the contract to install the heating system in a rear addition to a boiler room at 1118 West Thirty-fifth Street.

Other Cities in the State.

George V. Andrews, of Harvard, has been awarded the contract to install plumbing and heating systems in a new bank building in that city.

The Peoria Plumbing Co., of Peoria, will install a modern plumbing system in a new residence in that city. The heating contract was awarded to the Bauman Hardware Co., also of Peoria.

M. Berdine, of Farmington, will install the heating system in a bank building, to be erected at a cost of $5,000, at Trivola.

O. W. Dawson & Co., of 340 North Main Street, Decatur, have recently secured the contract for the construction of a half mile of 15-inch sewer in Decatur for the Wabash Railroad.

The Carson-Payson Co., of 22 East Harrison Street, Danville, has secured the contract for the installation of a new boiler at Carthage College, Carthage, and an addition to the central heating plant which heats seven buildings. This company will also install plumbing and heating systems in Bureau Township High School, Bureau.

Royer & Schlie, of Decatur, have been awarded the contract for the installation of plumbing and heating systems in the Macon County Hospital and Nurse's Home. The contract amounts to $65,000.

The Reliable Plumbing & Heating Co., Inc., of 105 North Walnut Street, Champaign, has been awarded the contract for the installation of plumbing and heating in the McLain County Tuberculosis Hospital at Normal.

Missouri

St. Louis and Vicinity.

The Heating and Piping Contractor's Association has held no meeting during the last three weeks on account of the influenza epidemic. At the association's headquarters in the Odd Fellows' Building it was said that the scarcity of material is working a great hardship on the heating industry, but the contractors are patriotic and do not complain. In normal times this is generally the busiest season of the year. Little repair work is under way in St. Louis, though a great deal will have to be taken care of later. A limit of $2,500 on all new jobs that are considered unessential, has caused a great deal of new work to be held in abeyance. Skilled labor is at a premium. Most of the best workers in the trade are now in the army or navy or have gone East to accept employment in the ship yards.

Delegates from Birmingham and Montgomery, Ala., at the St. Louis Convention of the National Association of Master Plumbers.—From "Domestic Engineering" Photo.

Oregon

Portland and Vicinity.

Building permits in Portland for the month of September showed a gain of 158 per cent over the same month of last year. A campaign for the construction of 1,000 houses to provide accommodations for workers in various war industries will be undertaken immediately. Complications due to misunderstandings of the situation, as to Government requirements, have delayed this campaign, but these are now under-

stood, and work will be rushed. The architectural committee is preparing plans for 35 types of homes, ranging in cost from $1,500 to $3,500 each.

Bids recently opened for piping and plumbing in Municipal Dock No. 3, Portland, showed that Sturges & Sturges, and Fox & Co. were the only bidders. No action has been taken on the award of the contract.

The Northwest Trust Co., of Portland, has received a permit from the War Industries Board to construct 100 houses. The structures will be built in the Peninsula District, and will cost from $1,200 to $1,700.

The city of North Bend has experienced the greatest activity in building operations in its history during the past 12 months. Increase in construction is fully 1,000 per cent greater than any previous year, and it represents an aggregate expenditure of more than $500,000. Of this amount, about $50,000 has been expended in the construction of residences, $25,000 in apartment buildings, and the remainder in industrial structures. The residences built number more than 35, and have a total of 200 rooms. Four apartment houses have been built. Besides the new buildings erected, a large number of old buildings have been extensively altered and improved.

Massachusetts

Boston and Vicinity.

The regular meeting of the Master Plumbers' Association of Boston and Vicinity scheduled for last Tuesday evening, November 12th, was cancelled in order that the members of the association might attend the dinner of the new Massachusetts Sanitary Club in which many of them are interested.

M. A. Dame & Son Co., of Lynn, has been awarded a government heating contract, which it is estimated will amount to about $1,000,000 and give employment to at least 500 men for four months. The contract is for the installation of heating systems in the new United States naval training station at Hampton Roads, Va. The station will consist of 365 buildings housing 6,500 men; will require 300,000 feet of radiation, six miles of trench digging and 2,000 poles for overhead mains. The work will be in direct charge of Clement T. Dame, who was in Washington when the contract was signed. The contract was placed without competition, the Dame company having figured on a job at Newport, which was almost a duplicate, recently, and having been the second lowest bidder.

W. E. Florence & Co., of 154 Pearl Street, Boston, has the contract for installing a heating system in an addition to the factory of the Wheeler Reflector Co., at Hanson.

John Gustafson, of Worcester, has the contract for plumbing in the Student Army Training Corps barracks at the Worcester Polytechnic Institute.

Pennsylvania

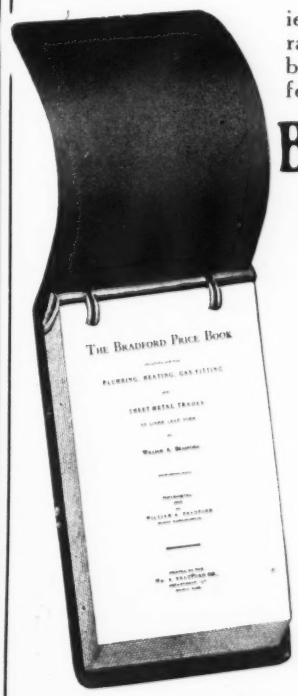
Pittsburgh and Vicinity.

Now that the war has been brought to a successful conclusion, members of the craft are eagerly awaiting some definite information from official sources as to what may be expected in the removal or modification of war restrictions in construction and building. The lines have been drawn so tightly by federal officers and war industries committees that practically all operations outside of Government work have been terminated. There is confidence

AUTHORITY on Price Fixing

Plumbers and steamfitters who have been using the Bradford Price Book day after day, have found by experience, that they can bank on it every time for accuracy.

The COST, Net and Resale prices on all standard articles are set out so plainly that it requires but a glance to arrive at the correct sale price to allow a living profit.



Speed, Convenience and Accuracy are the three big outstanding features of the

Bradford Price Book

It is bound in flexible loose-leaf, four-ring binder. All changes in price are covered by revised sheets sent free of charge for one year.

Get One On Approval

Let us send you a copy of the Bradford Price Book by return mail. Price $12. After using it for 15 days if you are not satisfied, return it and your money will be refunded.

Sample Sheets Free

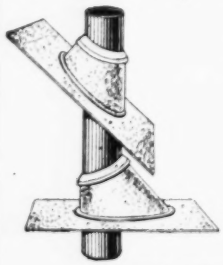
Wm. A. Bradford
Department C
7 Maple St., Quincy, Mass.

UNITED LEAD TIN BRASS **LINED PIPE**

Longest-lived, most economical pipe made. Also "United" acid-proof pipe and fittings.

UNITED LINED TUBE & VALVE CO.
186 Franklin Street BOSTON, MASS.

Simplex Adjustable Roof Flashings



Made of Lead, Copper or Galvanized Iron.

Easily applied—Leak proof—Rustless.

Install Simplex for Service and Satisfaction.

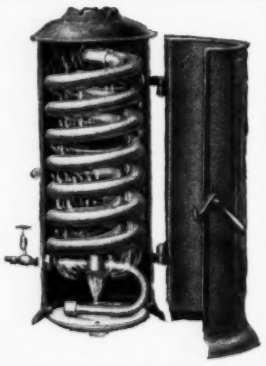
Your jobber has them.

SIMPLEX MFG. COMPANY
313 So. Clinton Street, Chicago, Ill.

SANDS Kerosene HEATER

Heats 30 Gallons Hot Water in One Hour

240 gallons hot water on one gallon kerosene.
HALF CENT A BATH.
Easily converted into gas water heater.



THE AUGMORE MFG. CO.
5319 Sweeney Ave., Cleveland, Ohio
Makers of the famous Augmore & Sands Heaters

Use Only the
ORIGINAL
Double Drainage Drains

The Standard of America

Look for "JOSAM" on Every Drain

Made by
JOSAM MFG. CO.
3063-3067 E. 61st St., Cleveland, O.
EASTERN BRANCH: 7 W. 45th St., NEW YORK
Pacific Coast Branch: 1002-4 Merchants Nat. Bank Bldg., San Francisco, Cal.

among leading members of the craft here that regulations will be eased somewhat in the very near future, and with that prospect in mind they have already begun a thorough canvass of the business situation. A survey is said to have been extremely encouraging. That there is plenty of good business awaiting release is certain. But it cannot be foretold at this time just when it will be possible to proceed. Important meetings of the Builders' Exchange and the Building Construction Employers' Association were held here during the past week at which these matters were discussed. Many suggestions and recommendations were offered, some of which were adopted for immediate use in advancing the interests of the trades. Nominating committees to select officers for the coming year also were named by both organizations.

One of the developments of the week was the granting of the first building permit for a dwelling in Pittsburgh by the city bureau of building inspection since the Government banned unnecessary building. It was given with the approval of the Council of National Defense. The permit is issued in the name of G. Capabianco and is for a five-room brick veneered frame and stucco dwelling and garage, the latter to be under the porch. The applicant it is said had practically all the material needed for the construction of the house. Its cost is $2,800.

Philadelphia and Vicinity.

J. A. Quinn, of 1613 Unity Street, has been awarded the contract for the plumbing and S. Faith & Co., of 2427 Pennsylvania Avenue, that for the heating, in the addition to the Frankford Hospital, Frankford.

G. F. Uber & Bro., of Thirteenth Street and Fairmont Avenue, have been awarded the contract for the installation of plumbing in the new Salvation Army Hotel, being erected for men in the country's service.

T. H. Walters & Son, of 227 Liberty Street, have been awarded the contract for plumbing and heating in the garage being erected in Allentown by H. Soffan & Co.

The Overbrook Plumbing & Heating Co., of Overbrook, will install plumbing in the new building erected by M. Williams in that city. The contract amounts to $7,000.

J. Schuler, of 76 Hazel Street, Wilkes-Barre, has the contract for the installation of plumbing in the new office building being erected in that city for A. C. Overpeck.

J. Cooper, of 613 Grant Street, will install modern plumbing and heating systems in a new church in Palmerton.

George Smith, of Pottsville, will install the plumbing in W. E. Lecher's new store in that city.

J. Schlenz, of 2901 Lehigh Avenue, has just recovered from a serious illness which confined him to his home for a number of weeks.

Ohio

Cleveland and Vicinity.

Gleason & Gavan, of 2204 Abbey Avenue, are remodeling the plumbing and heating systems in several factories in this city.

The Weiss Plumbing Co., of 1111 Bolivar Road, S. E., has been awarded the contracts for plumbing and heating in the new Armour Plant, Griswold Co.'s Building, National Malleable Casting Co.'s new plant, the Blackston Building, the Everett Apartments, Western Machine Products Co.'s plant, Kuhlman Car Co.'s plant and in the new addition to the Gilsey Hotel.

Wehrle & Schmul Co., of 14238 Euclid Avenue, East Cleveland, has a very attractive and timely window display, featuring gas burners for heating boilers.

Frank M. Czerny, of 2425 East Eighty-fifth Street, has been awarded the contract for remodeling the plumbing in four residences, three apartments and a store.

A. J. Bingham, of 1969 East Fifty-fifth Street, has the contract for remodeling the plumbing in several factories and residences in this city and suburbs.

F. A. Warburton, of 9416 Raymond Avenue, is installing modern plumbing in several residences and apartment buildings.

Other Cities in the State.

The Elyria Master Plumbers' Association recently held an outing and dinner, about 125 attending.

W. J. Lucas, of 68 Broad Street, Elyria, has been awarded the contracts for plumbing and heating in the National Heel Co.'s plant, the Consolidated Rubber Co.'s plant and C. H. Ingwer's residence, and for remodeling the plumbing in the Andrews Hotel.

R. W. Knee, C. E. Burnett, C. A. Kuebler and J. F. Dare, all of the Burnett-Larsh Mfg. Co., of Dayton, O.—From "Domestic Engineering" Photo, taken at the St. Louis Convention of the National Association of Master Plumbers.

The J. A. Lucas Co., of Elyria, has secured the contracts for remodeling the plumbing systems in several residences and in one factory.

J. H. Thompson & Son, of 18 West Avenue, Elyria, will install modern plumbing and heating systems in the Elyria Hospital and the E. F. Allen residence. The former contract amounts to $6,000 and the latter to $4,000.

New Jersey

Trenton and Vicinity.

Piper Bros., of Trenton, have been awarded the contract for the installation of plumbing and heating in the Municipal Hospital being erected by the City of Trenton.

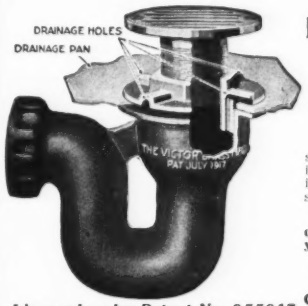
Clarence Scull, of Camden, who gave up his plumbing business to enter the United States army, has arrived safely overseas.

P. J. Sand, of Camden, is now superintendent of plumbing and heating in the Hog Island Ship Building Co.'s plant.

Other Cities in the State.

Harry J. Mangan, a well-known plumbing and heating contractor at Salem, has two sons in the American Expeditionary Forces in France, H. N. Mangan, lieutenant in the Aero Division, and George R. Mangan, sergeant in the Infantry. Both have recently been in action, according to letters which have just reached their parents. That Lieutenant Mangan has had some close calls is apparent from one of his letters, from which we have been permitted to

VICTOR



Double Drainage Shower Traps and Drains

Feature No. 1

Victor traps have a strainer adjustment of 4 inches, making "roughing-in" measurements unnecessary.

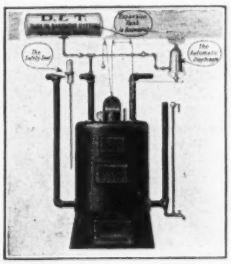
If your Jobber does not carry Victor Traps, mail your order to us.

The Victor Brass Mfg. Co.
CLEVELAND OHIO

Licensed under Patent No. 855017

D & T Tank-in-Basement System

Saves 25% on Coal Bills



It is the most economical and efficient method of Hot Water Heating known. It will save your client money on the purchase of equipment, the installation and up-keep.

Over 25,000 D. & T. systems now in use.

Write for Booklet "Progress in Hot Water Heating."

D & T Manufacturing Co.
1907-09 Pine Street
St. Louis, Mo.

The demand for our Ingot Metal has made H.I.M. grow.

The largest Brass Goods Manufacturers in the middle west are using exclusively our
Red and Yellow Ingot Metal.

Brass Founders using H. I. M. Ingot Metal are paying no attention to the high price of Copper and Spelter.

If you neglected to buy H. I. M. write for particulars.

HARTMAN INGOT METAL CO.
2511 West 21st Street
CHICAGO, ILL.

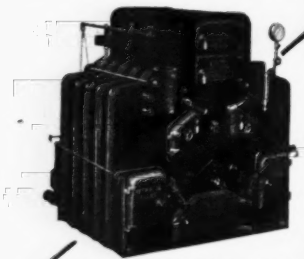
Full Value from Every Pound of Steam

With this Nicholson Expansion Steam Trap, there can be no flooded, cold radiators. The quick expanding center tube makes valve action positive. It allows waste to pass through, but shuts tight when live steam comes along.

The trap can be installed in any position; no levers, no floats or bearings. Nothing to get out of order.

Write for complete information.

W. H. NICHOLSON & CO.
112 Oregon St. Wilkes Barre, Pa.



The Newport

The Magazine Feed Boiler with the Adjustable Throat

The Patriotic Boiler

This year home owners will be forced to take various sizes and kinds of fuel—pea and buckwheat along with chestnut, range and egg. Also non-caking nut soft coal. The Newport is the only boiler which burns efficiently all these sizes and kinds—separately or mixed. Thus your customers are safe, for unusual fuel conditions are overcome. Send for "Newport Heating" document.

Newport Boiler Company
107 South Dearborn Street Chicago

Extra Business for the Plumber

Everywhere you install a radiator you have a customer for

The Savo Air Moistener

Works automatically. Costs nothing to maintain.

A corrugated galvanized iron reservoir which hangs on back of radiator out of sight. Keeps uniform humidity throughout house.

Use it on old as well as new work.

Write for free advertising material that helps to sell the SAVO.

SAVO MANUFACTURING CO.
39 S. LaSalle St. Chicago

NEW BUSINESS

from Old

Heating Systems

Show your customers how you can convert their coal-burning systems into combination coal and gas plants, at little expense, by installing

The FRANKLIN
Quick Removable
GAS SYSTEM

Can be changed from gas to coal in a minute's time without tools.

The FRANKLIN burns less gas and gives more heat.

A source of good profit for you. Now is the time to get busy with the FRANKLIN.

Write today for more details.

The Franklin
Plumbing & Heating Co.
Carthage and Mitchell Avenues
CINCINNATI, OHIO

quote as follows: "I guess I had better write while I am still able, for yesterday came near being my last. Three of our ships went up to take photos. I was with Jack L. Our ship was working fine, and we finally went over the lines in formation at about 5,000 meters. We had gotten about 25 kilometers behind the lines, when our motor went dead, and we had to cut for home. I had never been in that part of the world before, and neither had Jack, so we did not know where our lines were, neither did we know if we would be able to make them. Just after we left the formation four Boches jumped us. They had been laying around for about 3 or 4 minutes before we left, and they finally gave us their undivided attention. I didn't know the motor was bad, until I told Jack to "whoop her up," as they were all coming for us, and Jack replied that he was trying his hardest, but she just wouldn't go. I got in about 300 shots mostly at long range, but I know one of their ships won't fly until it is patched up, for I gave it a burst of about 150 or more, with both guns, and I could see my tracers flying all around his fusilage, so I know that boy got his, and we had only two holes in our plane. Once, while I was changing magazines, I asked Jack to bear to the right, and he answered he was afraid to do so, because there were four more boches ahead on the right. I think they were in reality American spads, for after we got back one of our friends told us that he saw us going down, and that we went right under their spad protection. At any rate our boche friends left us there, and we finally had to land, not knowing whether we were on friendly territory or not. Jack picked out a field that looked like a pool table seen from the air, and he just barely cleared some telephone wires around the field. And then, as we were settling down for a nice landing, we saw the character of the ground. I just grabbed hold and braced myself, as much as I could, and tried to pray. For the ground was made up of little hills and hollows, about 8 ft. high and deep, respectively, and about 15 or 20 ft. apart. We hit and crashed, and I was still holding on and waiting for the thing to drop me, when I finally decided she had stopped moving, and I could open my eyes. On doing this, I looked into the clear blue sky, and saw no earth anywhere. I turned over and saw Jack below me, unbuckling his harness. Fortunately we were both unhurt. We had smashed our landing gear when we struck, and the machine stood right on its nose and stopped there, with its tail pointing straight up. Then, of course, we looked around to see what manner of men we had fallen among. We were more than overjoyed to see a French officer approaching. After extending congratulations on our fortunate escape, he told us that we had landed thirty-five kilometers from our home field."

Indiana

Indianapolis and Vicinity.

Patriotic master plumbers and their employes, of Indianapolis—all lovers of peace, but even more lovers of the rights of humanity—joined with the rest of the population of the Hoosier capital in celebrating the virtual ending of the great world war with the biggest demonstration the city has ever experienced. It was the second celebration they had participated in within a week, having been led to the spirit of rejoicing November 7th by the unfounded report that Germany had signed the armistice, but the last one was much bigger than the first. Every noise-making device that ingenious plumbers and steam fitters could invent began a mobilization in the down-town streets early, and the noise continued until long past midnight, when sheer fatigue called a halt.

Frank Callon, of the firm of Callon Bros., plumbing and heating contractors at 24 South Alabama Street, received a German helmet this week from his son Gail, known to the boys around the plumbing establishment as "Toots," who is with the famous Rainbow division on the western front. "Toots" has been serving as a dispatch rider for the last few months and writes that he is hale and hearty. He said in the letter that he hopes to be able to eat Christmas dinner in Indianapolis.

Other Cities in the State.

Instructions for the city to begin immediately the laying of the water mains and the extension of the sewer system to connect with the 250 houses to be erected by the Government for war workers in the southwestern part of the city, have been received by the municipal authorities at South Bend. The houses are to be erected at a cost of approximately $750,000. Estimates have already been obtained by the Government from South Bend master plumbers for plumbing work necessary in the new homes.

The United Plumbing Co., of 1201 Madison Avenue, Gary, has been awarded the contract for the installation of plumbing and heating systems in sixty-two new residences that are to be erected in the Tyler Park addition for the Gary Land Co. The houses will cost about $3,000 each.

The Evansville Plumbing Co., of 1026 West Franklin Street, Evansville, has received the plumbing contracts on the new $15,000 tuberculosis hospital that is to be erected at Boehne Camp, for the Evansville Anti-Tuberculosis Society.

E. Pripps, of Gary, was the successful bidder for the plumbing and heating contract on the new $10,000 residence that is to be erected at 614-624 Lincoln Street for the John Kerr Co.

The heating and plumbing contracts on the new addition to the F. H. Burnham Manufacturing Co.'s plant at Michigan City, have been awarded to the firm of Simpson & Adamson, of 904 Franklin Street, that city.

The Stanley Plumbing & Electric Co., of Richmond, has received the contract for the installation of the plumbing and electric wiring in the new addition to a store building at Ninth and Main Streets in that city.

Washington

Seattle and Vicinity.

Figures compiled by the building department of Seattle indicate that the 1918 total will rank among the greatest in the history of the city. Since the first of January, nearly $10,000,000 has been expended in Seattle building construction, while slightly more than $5,000,000 was spent in all of last year. In the early part of the year, there was an unparalleled volume of shipyard and factory construction. This activity has practically abated, and a glance at local building records shows that it is the activity in home building, which is boosting construction values into record figures this year. About $4,000,000 have been spent in substantial residence construction alone. More than 3,500 old and almost useless structures have either been remodeled or reconstructed since the first of the year, while nearly 200 buildings have been moved, or demolished to make way for new structures. It is believed that the activity in residence building is only just beginning. At least 500 additional residences have been pledged to be built before the end of the year. Other building will, of course, be hampered by Government regulations, but residences of all kinds are in urgent demand, and it is expected that this work will continue unabated.

Plumbing and heating contractors have been exceptionally busy during the past ten months. The small establishments have been particularly active, as they are in a better posi-

SIMPLICITY
The Main Feature

The fewer parts connected with a water heater, the less chance for trouble and repairs. In this respect there is no heater on the market to equal the

EXCELSO Water Heater

Consists of one-piece casting having two separate chambers, one outside the other. Hot water from boiler circulates through inner chamber and heats domestic water circulating through outer chamber. Easily installed to steam or vapor boilers. Made in three sizes for 40, 70 and 100 gals. capacity.

The EXCELSO takes place of firepot coil and gives cheaper and better service. **Write for circulars and details.**

CAPACITIES AND PRICE LIST

When used below the water line

No. 2	40 Gal. Cap.	$20.00
No. 3	70 " "	$30.00
No. 4	100 " "	$40.00

When live steam is used.

No. 1	40 Gal. Cap.	$15.00
No. 2	100 " "	$20.00
No. 3	250 " "	$30.00
No. 4	400 " "	$40.00

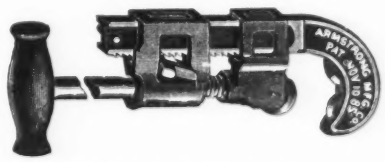
Liberal discount to the trade.

Excelso Specialty Works
1377 Main St. BUFFALO, N. Y.

BRINGING
ARMSTRONG TOOLS
TO YOU

THIS Pipe Cutter is not only the strongest and most rapid working, but it is the cheapest, by reason of its taking a larger range of pipe than any pipe cutter known.

CATALOG SENT UPON REQUEST

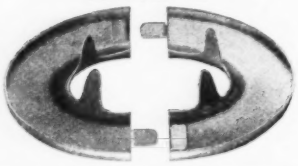


Model A Quick Acting

THE ARMSTRONG MFG. CO.
284 Knowlton Street Bridgeport, Conn.

WOLVERINE
Sectional Floor and Ceiling Plates
Flat Pattern

Sizes
⅜" to 2"



Steel
Nickeled

Wolverine Brass Works
MANUFACTURERS
Grand Rapids, Mich. San Francisco, Calif.

The AMERICAN Bent Tube Sink Trap

Fig. 2386

WITH CAST FEMALE IRON PIPE OUTLET

This trap can be furnished in either 1¼ inch or 1½ inch size.

Ask Your Jobber

AMERICAN SANITARY MFG. CO.
ABINGDON, ILL.
Manufacturers of
FINE N. P. BRASS SPECIALTIES

HAYNES SELLING COMPANY

Heating Specialists

Modulated and Vacuum Heating Systems Adapted for all Types of Buildings

Over 25 Years' Experience

1711 Sansom Street Philadelphia, Pa.

American Beauty Line
—*of*—
Pure White Bathroom Fixtures

YES SANITARY IS

No. 767

No unsightly screws on face of Post Brackets—a new and novel feature.

Post Brackets only 2½ in. Smallest ever made.
Order Sample

The up-to-date, better kind.

Order from your jobber.

Bay Ridge Specialty Company, Inc.
Trenton, N. J.

tion to handle residence work. However, in many instances, the houses have been built in lots of five to ten cottages, and the larger firms are well equipped to handle such contracts. Journeymen plumbers are very scarce, and wages are high. The labor problem is becoming a serious one in every class of industry in the Northwest, and Seattle plumbing firms have had their share of embarrassment in securing competent workmen.

Architect Wm. G. Mann is preparing plans for a number of new residences in Seattle. One block will comprise four new residences on Queen Anne Hill, to cost $4,000 each.

Architect F. H. Perkins, Lumber Exchange Building, is preparing plans for seven frame bungalows to be built by the Turner Realty Company in the Interlaken Addition.

Architects E. J. Ivey and H. H. Riley, Boston Block, Seattle, have completed plans for a number of residences in Seattle. Among them is a residence in Mt. Baker Park, for Emil Pohl, contractor, who will build the structure himself. Separate contract will be let for plumbing and heating. Ivey & Riley have also completed plans and awarded contract to J. Soley, of Everett, for five new bungalows in Alderwood Manor, between Seattle and Everett. Separate contracts will also be let for plumbing and heating in this case.

The Seattle Plumbing & Supply Co., 1202 Occidental Avenue, Seattle, will soon build a one-story warehouse for its own use.

Other Cities in the State.

Building activity in Aberdeen has been good during the last two months, judging by the number of permits issued. The Bowes Bros. Co. will build 12 new bungalows in the west end, in addition to six which are under way, or about completed.

W. F. Dugay, whose likeness is shown herewith, conducts a successful heating business at Burlington. He reports having remodeled a large number of heating systems during the past season. Following the example of his friend, Arthur H. Moulton, of Portland, Me., Mr. Dugay also had a war garden of large dimensions, and the result of its cultivation proved most satisfactory. He admits, however, that he will not be able to feed Uncle Sam's army, but says that he will be able to take care of his home guard.

W. F. Dugay.

J. S. Waugh, of Aberdeen, will build a reinforced concrete and arched stone building, 50x130 ft., at Heron and I Streets. The structure will be two-story, and it is to have a modern heating plant.

Construction of homes is very active in Bremerton, the Puget Sound Naval Yard. It is estimated that beside the 300 homes to be built by the Government, at least 700 additional residences will be required to meet the need for new homes by Bremerton workers.

Norton & Spangler, of 338 Henry Building, Seattle, have recently landed some important contracts. Among the larger jobs is the plumbing for the Skinner & Eddy Shipbuilding apartments under erection on Beacon Hill. This contract amounts to about $60,000. The firm has also received the contract for plumbing and heating in the George T. Myers residence at 1204 Boren Avenue, involving an expenditure of $4,500.

California

San Francisco and Vicinity.

The tying-up of building in the Pacific Coast cities as a result of the non-war-building program has been rather more complete than most plumbers anticipated and more complete than was realized before the October building records were published and the various housing programs and other war and necessary work have come far short of filling up the gap left by the stoppage of the ordinary run of building. Even the cities where the most war work has been under way show, as a rule, a considerable drop in their building records for October. In San Francisco there was a drop of considerably more than half even from the low records of September and in Oakland on the east side of San Francisco Bay, where war activity was at fever heat, there has been a falling off of more than one third from the September showing. In Los Angeles where war activities were small, the October building permits show a loss of about 80 per cent to the insignificant total of $173,000. In the north, Portland, Ore., shows a loss of about 25 per cent. Seattle, Wash., appears to be about the only large city on the coast where the war activities have really been large enough to exceed the loss in ordinary building. While the October record in Seattle is less than that for September, it is still well above the million and a quarter mark, and more than double Seattle's peace time monthly average.

The contracts for the addition to the Bankers' Investment Building on Market and Geary Streets were let this week. The heating went to the Scott Co. on their bid of $2,600, and the plumbing to Frederick W. Snook at his bid of $5,278.

The preliminary contracts for the additions and alterations in the Balfour-Guthrie Investment Co. Building on Sansome Street, near California, were let this week. Figures are soon to be taken on the plumbing.

The report of the California State Board of Control shows that work aggregating nearly five and one quarter million dollars planned by the State of California was postponed, owing to the necessities of the war. This includes the $3,000,000 Capitol Extension, the proposed new California state building at San Francisco, the $775,000 San Francisco State Normal School Building, the $220,000 Humboldt State Normal School Building and smaller amounts for state hospitals and other buildings.

Georgia

Atlanta and Vicinity.

The Farrell Heating & Plumbing Co. is installing plumbing systems at Camp Sevier, Greenville, S. C., and Camp Hancock, Augusta.

All the work at Camp Gordon, Camp Jesup and Fort McPherson is being done by Atlanta contractors.

Walker Electric & Plumbing Co. has been awarded the contract for the installation of plumbing in the rifle school and testing ground being erected by the Government at Columbus.

Charlie Heer has been awarded the contract for the installation of steam heating, and the Landers Plumbing Co. that for the plumbing in the Hospital for Crippled Children being erected in Decatur.

Gresham-Jackson Co. has the contract for the installation of plumbing and heating systems in the Fulton Bag & Cotton Mills.

WE BUY

Iron Pipe Couplings

SPOT CASH

How many, either pounds or pieces, have you of various sizes?

GWILLIAM SUPPLY COMPANY

615 Christian Street PHILADELPHIA, PA.

FOR SANITARY REASONS

WHEN

Building Bigger Business

Install "SANIDOME"

Bibbs, Bath and Basin Cocks

Your Customer Will Pay More and Make More Profit For You

Write for information

THE HAYDENVILLE COMPANY

HAYDENVILLE, MASS.

Dole PACKLESS GRADUATED RADIATOR VALVE

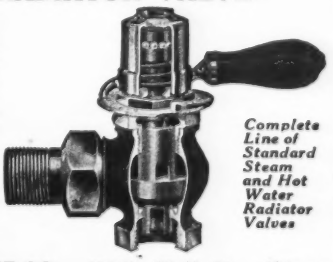
Embodies a new and exclusive DOLE principle by which you can have every degree of opening required in vacuum or vapor steam heating.

This Adjustment is easily made while the steam is on.

Nothing like it on the market.

Furnished with the DOLE without extra cost.

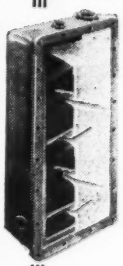
Write for new circulars.



Complete Line of Standard Steam and Hot Water Radiator Valves

THE DOLE VALVE CO. 208 No. Wells St. Chicago

No Difficulty in Selling the Sharp's Heater



Sharp's Cleanout Water Heater will prove a good investment for your business. It is not a product you must "push" in order to get sales. Careful, knowing buyers will quickly perceive its advantages. Its construction, which will at no time require new heater parts, the ease with which it can be cleaned, the small amount of fuel needed and the many years it will give service, are all things which make the Sharp's no ordinary type of heater and one to be preferred everywhere.

Write or Wire for Complete Information Concerning the Sharp's Today.

GENERAL MANUFACTURING CO.

Heater Dept. 67 19th Street, WHEELING, W. VA.

THE X-RAY AS A TIME SAVER

LOOK FOR NATIONAL THE NAME

¶ The time spent in experimenting to find pipe of proved durability and other high qualities would be saved IF THE ADVANTAGES BACK OF THE WORD "NATIONAL" COULD BE SHOWN BY AN X-RAY.

¶ An announcement featuring this theme appeared in the November 2d issue (page 71). If you missed it, look for it now!

NATIONAL TUBE COMPANY Pittsburgh, Pa.

The Hotstream WATER HEATER

Kerosene Water Heater

Here is a REAL Kerosene heater. Heats as HOT and FAST as a gas heater. Patented wickless burner generates its own gas, and throws a clean, powerful, odorless flame. Will run over 12 hours on a gallon. Send for catalog and folder.

THE HOTSTREAM HEATER CO., 1375 E. 17th St., Cleveland, O.

"Makers of Heaters That Heat" Noiseless blue flame—like gas.

ADJUSTABLE IRON CLOSET BENDS

PLAIN OR TAPPED

4 in. dia. 12-15-18 in. long

Wolverine F'dry Co.

Detroit, Mich.

Manufacturers of Boiler Stands, Vent Caps, Cesspools, Sink Brackets, Laundry Tub Legs, etc.

Cutting Sodering Time

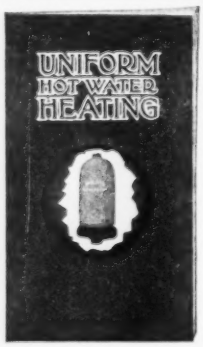
Robert W. Hunt & Co., Testing Engineers, Chicago, carried out exhaustive tests with the four Allen Fluxes, and six other leading commercial fluxes. Their report contained the following paragraph:

"In making up the test pieces it was noted that the time required for the soldering operation varied considerably for the different fluxes and that greater speed and cleaner joints were made with the use of Allen's paste and liquid fluxes."

For free sample and literature address L. B. ALLEN & CO., INC., 4525 N. Lincoln Street, Chicago, Ill.

Collapsible trusses with patented notch catch that cannot work loose. A positive lock. Top and legs made of best grade heavy angle iron. Braces of heavy wrought iron. Large, strong rivets. Coated with good quality black paint. Get acquainted with the Jiffy Collapsible Laundry Frame—your jobber will introduce you.

THE FORD DONLEY CO., 1940 East 117th St., Cleveland, Ohio



Write for This Booklet

It tells you all about the

Ball Seal Generator

for Hot Water Heating.

This generator increases circulation and radiation. Prevents sluggish, water-logged conditions. Reduces fuel cost. Operates without noise. No attention needed.

Just what you want for that next job.

The Ball Seal Generator Co.

Easton, Pa.

SOLDER, SOLDERING AND LEAD BURNING.

(Continued from Page 245.)

gas is laid in, this may also be procured in cylinders under pressure. The two gases are brought together through a breeches piece and blow-pipe constructed on the injector principle. By its use oxygen, delivered under slight pressure from a trade cylinder, is caused to draw coal gas direct from the ordinary city supply, and then inject the mixed gases in the right proportion through the nozzle of the blow-pipe. The use of pure oxygen, instead of air for combustion with the blow-pipe, makes it possible to use coal gas instead of hydrogen, as the combustible gas.

The advantages claimed for this method are as follows:

1. Economy.
2. The hydrogen generator is dispensed with.
3. The water bellows is dispensed with, and consequently the services of a helper are not required.
4. Instead of having to move a heavy hydrogen generator and water bellows from one job to another, it is generally only necessary to move a light cylinder containing the oxygen required.
5. No apparatus to get out of order.
6. No zinc or sulphuric acid are used, and there is no deleterious matter to be carried through the blow-pipe to act injuriously on the lead seams.
7. No pre-warmer or fou-fou required on heavy work.
8. No gas generated when the blow-pipe is not in use, and there is no charge to withdraw overnight.
9. It is always ready for use.

No flux is necessary in lead burning, but the portions to be burned must be thoroughly shaved, as in soldering. The seams may be either butted together, and a strip of shaved lead fused into the shaved portion, which gives the seam a herringbone appearance, as shown in Fig. 3; or they may be lapped over each other and fused as before, giving an appearance similar to that shown in Fig. 4. The lead may also be fused in an upright position as well as overhead when the operator becomes proficient. All kind of joints can also be made on lead pipe.

A STEAM HEATING SYSTEM IN A FACTORY.

(Continued from Page 249.)

The coils, as shown, have ten pipes each, and we suggest that the manifolds used be 3-inch on the run in order to properly supply all pipes with steam, or better, that a manifold with back outlet be provided for the supply end of each coil. This back outlet should be situated about half way the length of the manifold.

The general plan of piping seems very good. We think, however, that the horizontal mains and the main return pipes could be increased one pipe-size to good advantage.

SWEDISH FOUNDRIES MERGED.

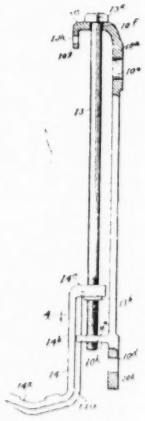
Syndication of metal industries is continuing on a large scale in Sweden. Husqvarna Vapenfabriks A/B, of Husqvarna, is said to be the largest foundry and machinery shop in Sweden. It has a capital stock of $1,648,000 and pays dividends from 10 to 16 per cent. It is now increasing its capital by 50 per cent and will absorb Norrahammers Bruk, another large concern in similar lines whose capital stock is $402,000.

Patents

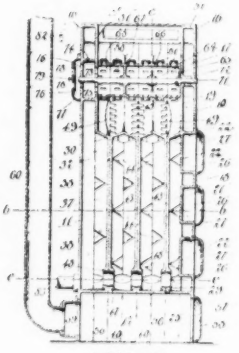
Heating Department.

1,280,397. Hanger for Wall-Radiators. George I. Chittenden, Lakewood, Ohio. A hanger for wall radiators comprising a bracket adapted to be secured to a wall and having laterally projecting ears, a bolt passing freely through said ears, a radiator seat having a radiator engaging portion beneath the lower ear, and having a portion extending upwardly past the lower ear and adjustably supported on the bolt between the ears, the upwardly extending portion of the seat and the lower ear having interfitting guiding portions.

1,280,788. Downdraft Heater or Boiler. William C. McKeown, Buffalo, N. Y. A down-draft heater or boiler comprising end sections and intermediate sections each intermediate section having hollow side members, a hollow vertically-disposed medial member and a series of connecting members extending outwardy and upwardly from said medial member to said side members, said connecting members being of less depth than said side members and alternately arranged at opposite sides of a plane passing centrally and transversely through the intermediate section to form circuitous downwardly trending draft passages, the connecting members terminating a distance from the upper and lower ends of said sections to provide a fire-place at the upper end of the heater or boiler and an ash pit at the lower end thereof, a smoke stack in communication with the ash pit, and means for closing the upper end of the heater or boiler.



1,280,397.



1,280,788.

1280,871. Heating System. Bernard A. Schroder, Birmingham, Ala., assignor to Automatic Gas Radiator Co., a corporation of Alabama. In a heating system a plurality of gas burning radiators having an outlet flue and a valve means to shut off its fuel supply, a draft stack with which said flues connect and through which the products of combustion from the radiators are discharged into the outer atmosphere, electric means adapted to effect the closing of each valve means, a master circuit which includes said several electric means, and a control means located at a remote point from the radiators for said master circuit which is responsive to variations in the stack draft and is adapted to effect the interruption of fuel supply to the radiators when the draft decreases abnormally.

"Femco" Fittings

Goods that make good — *Quality first, last and always*

We make a complete line of Plumbers' Brass Supplies for all requirements. Write for prices.

Frost Manufacturing Co. Kenosha, Wis.

Cyclone Ventilators

make toilet rooms **odorless and sanitary.** No chemicals. In demand wherever there is a water closet.

Use on old or new work. Always satisfactory. Good profit and a business-getter for the plumber. Write for details.

SANITARY APPLIANCE CO., *Mfrs.*, Neenah, Wis.

Makes No Noise

A Quiet Pump in Your Home

You can keep Pump noise out of your home by keeping out the kind of a Pump that makes a noise.

The Geo. J. Roberts Co.

Dayton, Ohio, U. S. A.

PORTABLE SHOWERS

SPECIAL PRICES IN DOZEN LOTS

SHOWERS OF ALL DESCRIPTIONS

GOETZ BRASS COMPANY

630 N. FRANKLIN ST. CHICAGO, ILLINOIS

ELECTRIC HOUSE PUMPS — Dayton — WATER SUPPLY SYSTEMS

Suction Pumps *and* Complete Water Supply Systems

pumping capacities 120 to 1,000 gallons per hour. Efficient Deep Well Pumps with Hyatt Roller Bearings and silent chain drive, pumping capacities 150 to 2,000 gallons per hour. **Write for bulletins and price sheets.**

The Dayton Pump & Manufacturing Co.

DAYTON, OHIO New York, N. Y., 30 E. 42d St.

No. 2A Thermostat

MFG. CO. **ROBERTSHAW** YOUNGWOOD, PA.

The standard for **30-40** gal. boilers, and single coil heaters or equivalent. **Has** ¾-in. gas openings.

We Make All Sizes

UNCLE SAM has tested our

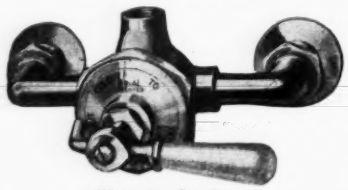
STANDARD PORTABLE VISE BENCH AND PIPE BENDER

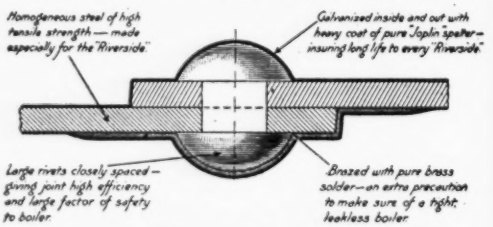
and same has proved satisfactory. HE is now one of the THOUSANDS of satisfied users we have. Drop us a line and we will send you full particulars, or ask your jobber for same.

STANDARD IRON WORKS

508-10 E. 74th Street, New York City

¶ If you want a salesman, foreman or workman, advertise in the Classified Department of "*Domestic Engineering.*" Used by the best houses in the trade.

ROYAL
Mixing Valve for Showers
Simple in Operation—Few Working Parts.

Write for Catalogue.
THE ROYAL BRASS MFG. CO. CLEVELAND, OHIO

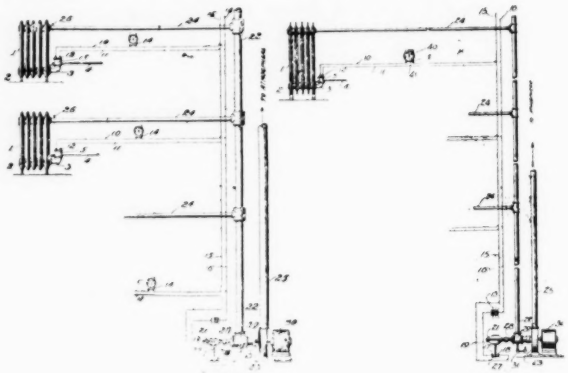
The "Riverside" Riveted and Brazed Seam

Homogeneous steel of high tensile strength — made especially for the "Riverside"
Galvanized inside and out with heavy coat of pure Joplin spelter — insuring long life to every "Riverside"
Large rivets closely spaced — giving joint high efficiency and large factor of safety to boiler.
Brazed with pure brass solder — an extra precaution to make sure of a tight, leakless boiler.
The Strongest and Tightest Seam on any Range Boiler
Riverside Boiler Works, Inc.
Cambridgeport, Mass.

SMOOTH-ON FOR LEAKS
TRADE MARK REG. U.S. PAT. OFF.
A Water or Gas Line Jointed with SMOOTH-ON No. 3 Gives Permanent Satisfaction

There's never any comeback on your work when you use SMOOTH-ON Elastic Cement No. 3 for your screw-thread joints. The SMOOTH-ON expands filling all the little irregularities that usually cause trouble with ordinary jointing compounds.
A SMOOTH-ON joint is good until the owner **wants** it down.
For Sale by Supply Houses.
SMOOTH-ON MFG. CO.
570-574 Communipaw Avenue
JERSEY CITY, NEW JERSEY, U. S. A.

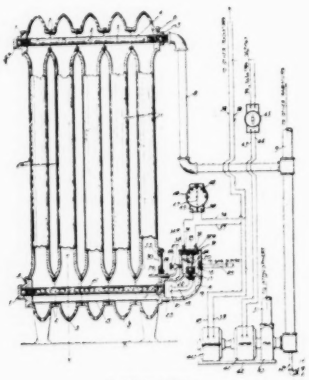
Tank Fittings of Quality
1856 "McSHANE" 1918
The ORIGINAL Compound Lever Ball Cock, Elevated, Low-Down, Top and Bottom Supply. Tank Levers and Valves.
McSHANE BELL FOUNDRY CO.
BALTIMORE, MARYLAND

1,280,872. Automatic Control Means for Gas-burning Heating Systems. Bernard A. Schroder, Birmingham, Ala., assignor to Automatic Gas Radiator Co., a corporation of Alabama. In a gas burning heating system where each radiator is provided with a single normally seated valve for controlling its gas supply an electric control system comprising a master circuit and a plurality of local circuits connected in multiple to the master circuit, each local circuit including a make and break switch, an electric device adapted, when energized to open a radiator gas supply valve, a thermostat


1,280,871.

1,280,872.

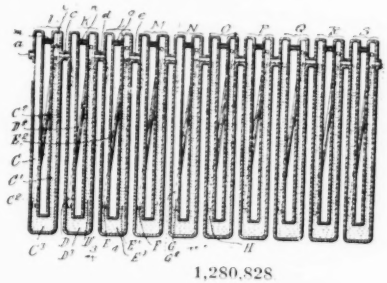
actuator for each make and break switch, means to establish a lost-motion operating connection between each thermostat and the switch controlled thereby, an exhaust piping system carrying off the products of combustion from the radiators, a means for inducing a positive draft through said exhaust system, and means operable when the induced exhaust draft is interrupted to open said master circuit.


1,280,870.

1280,870. Gas Heating System. Bernard A. Schroder, Birmingham, Ala., assignor to Automatic Gas Radiator Co., a corporation of Alabama. In a heating system comprising a plurality of independent gas burning radiators each having a gas supply valve, electric means to operate the valves, thermostatic means which control the operation of the valves, power driven means to exhaust gases from the radiators, and a motor generator set comprising a generator which supplies current to said electric means and a motor connected to said generator and to said power driven exhaust means for the system.

1,280,828. Steam-trap. Frank E. Pendleton, Montclair, N. J. In a device of the class described, a series of vertically extending receiving and discharge chambers arranged in alternation; a supply conduit leading into the first of said receiving chambers; a discharge conduit leading from the last of said discharge chambers; means whereby the lower end of

each receiving chamber is placed in communication with the lower end of the next following discharge chamber of the series; means whereby the upper end of each discharge chamber is placed in communication with the upper end of the next following receiving chamber of the series; and means

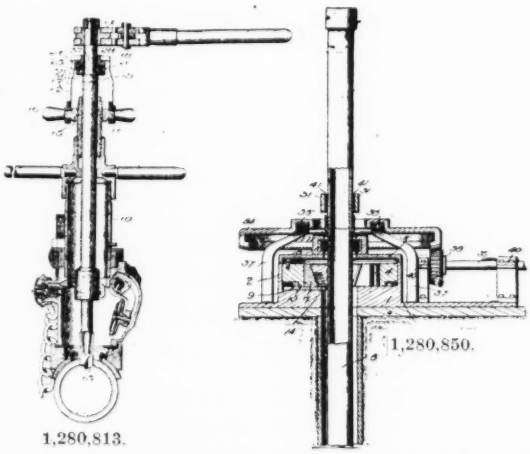


1,280,828

whereby the lower end of each receiving chamber is placed in communication with the upper end of the next following receiving chamber of the series.

Plumbing Department.

1,280,813. Bearing for Tapping Machines. Philip Mueller and Anton C. Shuermann, Decatur, Ill. In a machine of the class described the combination with a boring bar having an abutment thereon, means for advancing said bar and a yoke between said bar and advancing means, of a bearing interposed between the abutment on said bar and said yoke, said bearing comprising a fixed collar having an annular groove or recess, a second collar having a depending skirt adapted to engage about the first collar and also having a depending annual flange engaging in the recess of said first collar, said second collar and said bar having therebetween a groove for receiving a grease packing, said skirt and said first collar having therebetween a groove for receiving a grease packing, and an anti-friction washer between said collars.



1,280,850.

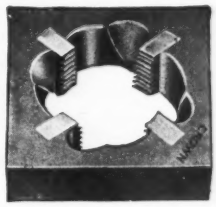
1,280,813.

1,280,850. Pipe-Puller. Sosthene Robichaux and Charles Paggi, Saratoga, Tex. A device of the character specified, comprising a base adapted to seat over a well casing and having an opening through which the casing may extend, holding means supported by the base through which the pipe is adapted to extend for engaging the pipe to prevent downward movement of the pipe clamping means above the holding means for gripping the pipe to prevent rotation thereof, and means above the clamping means for engaging the next upper section to unthread the same from the next lower section, said last named means comprising a gear wheel having an opening through which the pipe extends, the base having a

"CROWN"

Guaranteed Tools and "Easy Cutting" Pipe Dies

"CROWN DIES" are "SCIENTIFICALLY MANUFACTURED." The teeth are "MILLED" not merely tapped as the ordinary Die. This is why "CROWN DIES" are the "EASIEST CUTTING" Dies on the market. They are the "BEST" Dies made and in the long run the "BEST" are the "CHEAPEST." Therefore, when ordering dies specify and insist on "CROWN DIES."



Your jobber has them or can get them for you.

Write for our catalogue.

Manufactured by the

Crown Die & Tool Co., 555 W. Monroe St., Chicago

Mfrs. of "Crown" Pipe Cutters, Chain Post Pipe Vises, Stocks, Etc.

Eagle All Lead Roof Flange

LEAD PIPE — SIZE OF APRON
Length, 6 inches — 15 inches Square
Diameter, 4½ inches
Made in Angles, 45 deg., 22½ deg. and Straight.

No Caulking To Be Done

Joints Lead-burned — No Solder Used

Flexible Adjustable Economical

Write for Circular and Prices.

Manufactured only by

The Eagle-Picher Lead Co.

CINCINNATI, OHIO

Use Products

manufactured by

RAYMOND LEAD WORKS

BRANCH UNITED LEAD CO.

735 South Washtenaw Ave. CHICAGO

If Your JOBBER Cannot Supply You With Our Goods, Send Your Orders To Us Direct

NIEDECKEN MIXER

For Shower Lavatory Bath Sink Etc.

Write for Bulletin D-10-X

HOFFMANN & BILLINGS MFG. CO.

MILWAUKEE

WARCO

Floor and Ceiling Plates

Substantially made of heavy stamped steel. May be cut to fit any conditions. Adjustable. Unbreakable.

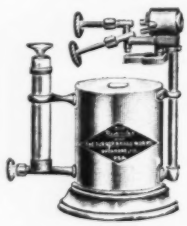
Hinge and catch new in construction and invisible when plate is closed.

Nickeled on copper. Highly polished. Sizes, ⅛-in. to 3-in.

Write for prices and details.

W. A. RUSSELL & COMPANY
63 W. 37th St., New York City

It's All in the Burner



No. 92

Perfect combustion, not only means the consuming of every particle of gasoline, but produces a higher degree of heat, greater efficiency and economy. This accounts for the unusual success of the

TRADE
Turner Double Jet Torch
MARK

Only torches with double-jet burners on the market. Adjustment is simple and easily regulated. Made of Turner bronze burner metal. Order the Turner No. 92 Torch from your jobber. It will soon pay for itself in saving of gasoline alone and give years of satisfactory service besides.

Write us for booklet. Dept. D.

The Turner Brass Works Sycamore Illinois

What Is There Then, You Want To Know?

We say the CLEAN SWEEP TRAPS are the most Satisfying.
ANTI SYPHON TRAPS the best for durability, the quality unquestioned.
The Appearance exceptional and the Service sure.
They meet up with all the iron clad arguments for good work.
Fit anything—anywhere—anyhow.
Homes—Offices—Factories.
Made Safe, Sane and Sanitary.
In Lead and Brass.

Detroit Sanitary Supply Co.
Sole Manufacturers
2d Ave. & Antoinette St. DETROIT, MICH.

TRY BLUE SEAL
AT OUR EXPENSE

This liberal offer is for plumbers who have never used BLUE SEAL. It gives an opportunity to try at our expense the original Money Back Drain Pipe Solvent.

Cut out this advertisement, mail it direct to us with your own address—and your jobber's. We will then send you, transportation charges prepaid, six one dollar cans (2 lbs.) BLUE SEAL

DRAIN PIPE SOLVENT

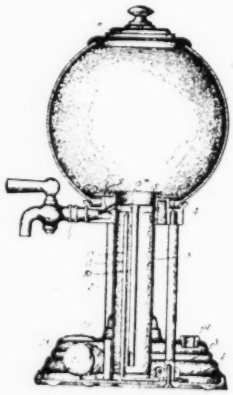
Use these six cans according to directions to clear waste and drain pipe stoppages. If the Solvent does all we claim for it you are to send us $3.60 (special price for plumbers) within ninety days. If not the trial costs you nothing.

10,000 plumbers now use Blue Seal. Over 300 jobbers stock, sell and recommend it. If you haven't used it, this is your opportunity

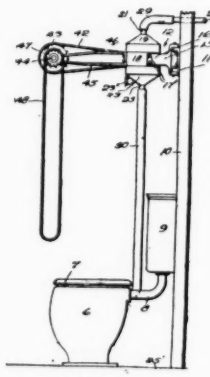
BLUE SEAL CHEMICAL CO.
417 E. 16th St. New York

turntable upon which the gear wheel moves, levers pivoted to the gear wheel and adapted to engage opposite sides of the pipe and having gripping jaws for engaging the pipe, means for forcing the levers together, and means for rotating the gear wheel.

1,281,158. Electric Water-Heater. William S. Hadaway, Jr., New Rochelle, N. Y., assignor to the Cutler-Hammer Mfg. Co., Milwaukee, Wis., a corporation of Wisconsin. An electric water heater comprising a base, a plurality of vertical standards thereon, a supporting ring mounted on the top of said standards, a heating chamber depending from said ring and arranged between said standards, a circulation tube supported from said ring and extending nearly to the bottom of said heating chamber, a metallic container closed at the top and passing through the bottom wall of said heating chamber, a heating unit having a sliding fit within said container and having its lower end, which projects beyond said container, deflected at a right angle, circuit terminals arranged on said deflected end, a circuit controlling switch mounted on said base, a signal lamp also mounted thereon and connected in the heating circuit, a cover plate for said base, beneath which the various parts mounted on said base are concealed, the said cover plate being arranged to slide on said standards to expose the parts arranged beneath the same, and having an opening adjacent to said lamp, whereby the latter may indicate when the heating current is off or on.



1,281,158.

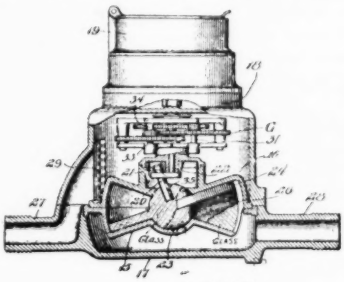


1,281,206.

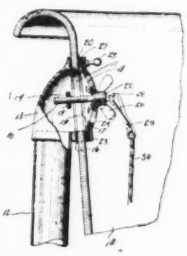
1,281,206. Ventilator. Emmett D. Rawlings, Port Huron, Mich. An apparatus of the class described comprising a chamber having an intermediate section, a top disposed upon one end of the intermediate section, and a bottom disposed upon the other end of said section; a propeller mounted within said chamber; means for rotating said propeller to establish an air current through said chamber in either an upward or downward direction, and a valve associated with said chamber, the valve being adapted to permit air to pass from said chamber when traveling downward through the same.

1,281,222. Fitting for Bath-Tubs. George Stepanchak, Farrell, Pa. In combination with a segmento-spherical strainer plate adapted to be secured over an overflow outlet of a bath tub, a screw freely rotatable centrally in the strainer plate and securing the latter in position, said screw being provided with an enlarged threaded head bearing on said plate and having a relatively short transversely apertured unthreaded reduced portion projecting from said head, a segmento-spherical valve plate freely rotatable on said head and conforming to the contour of said strainer plate, a segmento-spherical friction washer interposed between the strainer plate and the valve plate to resist free rotation of the latter, a nut threaded on said head to lock the valve plate against rota-

tion, and means to prevent removal of said nut detachably engaged in the aperture of said unthreaded reduced portion of the screw and adapted to have a stopper chain attached thereto, substantially as described.



1,280,689



1,281,222.

1,280,689. Water Meter. Theodore Eck and Orie Cathcart, Mulvane, Kans. A water meter comprising a casing, a piston therein formed of glass and comprising a spherical body having a circumferential flange provided with a radial slot, an abutment also made of glass and snugly fitting the said slot and having its inner end provided with a curved recess to snugly engage the spherical body, and a stem made of metal connected with said spherical body.

REHABILITATION OF OUR WOUNDED.

The United States Government is resolved to do its best to restore every wounded American soldier and sailor to health, strength and self-supporting activity.

Until his discharge from the hospital all the medical and surgical treatment necessary to restore him to health is under the jurisdiction of the military or naval authorities, according to the branch of the service he is in. The vocational training, the re-education and rehabilitation necessary to restore him to self-supporting activity, is under the jurisdiction of the Federal Board of Vocational Education.

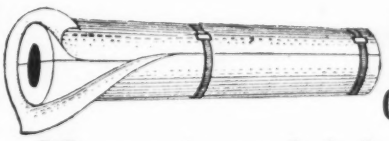
If he needs an artificial limb or mechanical appliance the Government will supply it free, will keep it in repair, and renew it when necessary. If after his discharge he again needs medical treatment on account of his disability, the Government will supply it free. While he is in the hospital and while in training afterwards the soldier or sailor will receive compensation as if in service and his family or dependents will receive their allotment.

A wounded soldier or sailor, although his disability does not prevent him from returning to employment without training, can take a course of vocational training free of cost and the compensation provided by the war-risk insurance act will be paid to him and the training will be free, but no allotment will be paid to his family.

Every Liberty Loan holder who holds his bond is keeping up a part of this great work of restoring to health, strength, and usefulness the men who have suffered for their country.

Dr. C. E. Siebenthal, of the United States Geological Survey, states that the production of cadmium in this country has steadily increased since 1910, reaching 207,000 pounds last year. In the first 8 months of this year there was produced 108,700 pounds of the metallic cadmium and 36,000 pounds cadmium sulphide. The plants producing metallic cadmium have increased in number. The metal is principally derived from zinc ore, in which it occurs in minute quantities. Aside from the United States, Germany is the only producer.

Economical Heating—A sufficient reason why you should install
PIERCE DOWN DRAFT HEATING BOILERS
For Steam, Water, Vapor, Vacuum, Heating
There are other reasons, too:
1. Magazine Feed.
2. Down Draft.
3. Smoke Consuming.
4. 25% Fuel Expense Saved.
5. 50% Less Attention
6. All Cast Iron.
Manufactured only by
PIERCE, BUTLER & PIERCE MANUFACTURING CORP.
Brooklyn NEW YORK Philadelphia
Boston Worcester Syracuse Baltimore Washington



Pipe Coverings
Magnesia and Asbestos
All Kinds
Our free art sign will help your sales. Write today for it, prices and samples.
Acme Asbestos Covering & Supply Co.
407 N. Ada Street, Chicago

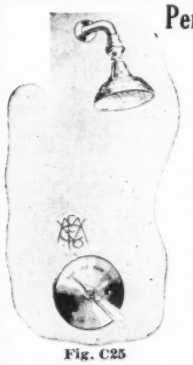


Fig. C25

Perfect Temperature Control with the MILWAUKEE Shower Bath
Nickel plated shower head. Concealed mixing valve with china handle and nickel plated dial plate.
Built for service. Ask your jobber for the Milwaukee Shower Bath.
Made by
Milwaukee Flush Valve Company
Milwaukee, Wisconsin

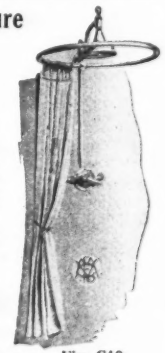


Fig. C40

FOR lasting quality and true capacity use "KOVEN" Pure Iron, Double Row Riveted, Galvanized Range Boilers, or NACO Galvanized Range Boilers made of open hearth steel. These boilers may be bought of jobbers everywhere.
L. O. KOVEN & BRO.
50 CLIFF STREET NEW YORK

Classified Advertisements

The charge for advertisements under this heading is $1.00 for 25 words or less, including heading and address; 4 cents each for additional words. To insure insertion, copy and remittance should reach us by Wednesday morning.

Situations Open

WANTED—LIVE, UP-TO-DATE, TWIN City jobbing house wants a young man to take charge of billing department. Must be well posted in plumbing and heating line. State age, experience, references and salary wanted. Address 2568, care "Domestic Engineering," 407 S. Dearborn Street, Chicago. 11-16; 23

WANTED—CAPABLE MANAGER FOR plumbing, heating and mill supply house located in South. Good opportunity and good pay. Situation now open. Address 2560, care Domestic Engineering, 407 S. Dearborn St., Chicago. 10-12; 11-30

WANTED — SALESMEN IN EVERY city. Are you looking for side line, easy to sell, many buyers and where business repeats? If so, and are willing to build up a trade write—Apex Chemical Co., Cleveland, O. 11-16

Situations Wanted.

POSITION WANTED — WHAT HAVE you for a licensed plumber? Can figure and lay out work—heating especially. Have been selling in Central Illinois and Eastern Iowa territories. Can give references. Apply to 2567, care "Domestic Engineering", Chicago. 11-2/30

POSITION WANTED — BOOKKEEPER with business ability and experienced in the plumbing and heating line, desires permanent position with a reliable firm. Age 32, married, competent and reliable. Address 2569, care "Domestic Engineering," 407 S. Dearborn Street, Chicago. 11-16

Miscellaneous.

WE BUY USED C. I. BOILERS AND radiators. D. B. Plumbing & Heating Sales Co., Ft. Wayne, Ind. 11-2/2-1

WE BUY IRON PIPE COUPLINGS—spot cash. How many, either pounds or pieces have you of various sizes? Gwilliam Supply Co., 615 Christian Street, Philadelphia, Pa. 10-6,tf

SELL YOUR SURPLUS COUPLINGS and fittings. Write us. The A. & J. Mfg. Co., 557 W. Lake St., Chicago. tf

Books for Your Trade Library.

Sanitation in the Modern Home..... 2.00
Sanitary Sewerage of Buildings..... 1.50
Notes on Heating and Ventilation, Prof. John R. Allen..... 2.50
Practical Steam and Hot Water Heating and Ventilating, A. G. King.... 3.00

Domestic Engineering
407 S. Dearborn St., Chicago

Use This Page To Get What You Want

If you are looking for competent employes; or if you contemplate a change in position, have a patent for sale; wish to purchase or sell a plumbing and heating business; second-hand machinery or tools; form a co-partnership, etc., your advertisement on this page will put you in touch with the people you desire to reach.

The cost of insertion is only four cents a word and may mean many dollars to you.

No. 25 DOUBLE BLAST

Results Are What Count

Mechanics who use DOUBLE BLAST Gasoline Fire Pots know that the maximum amount of heat can be obtained from the minimum amount of fuel, by using a DOUBLE BLAST.

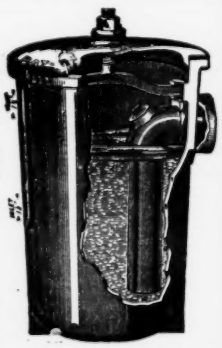
The letters of the words, "DOUBLE BLAST," aptly represent many important and superior points in the construction and operation of the DOUBLE BLAST. Read them over.

Double Burners	Best
Odorless	Labor Savers
Unrivaled	Aluminum Bronzed
Blue Flame	Safety
Lasting	Time Savers
Economical	

Leading jobbers handle them. If your jobber does not handle them, send us your order and we will ship direct. Additional information and circulars will be furnished upon application.

Double Blast Mfg. Co.
20th and State Sts., North Chicago, Ill.

The Boston Grease Trap



is pronounced the most efficient trap on the market, wherever it is in use.

Separates all grease from waste water and retains it so that pipes will not become clogged.

Special clean-out feature. Handhole is extra large, making it easy to remove grease.

Price within reach of all.

Write for details.

R. Estabrook's Sons
1st and C Sts., South Boston, Mass.

WATROUS
SANITARY PLUMBING FIXTURES
PATENTED
DUOJET

A line representing the most advanced ideas in Sanitation, Economy of Operation and Ease of Installations.

Duojet Closets—Flushing Valves—Urinals—Drinking Fountains—Self-Closing Cocks—Liquid Soap Fixtures, Etc.

Manufactured and Sold Exclusively by

The Imperial Brass Manufacturing Co
510 South Racine Avenue, Chicago, Ill.

ASK FOR CATALOG

PAUL Systems give the Best Service

Private Water Systems	For Country Homes, City Residences, Country Clubs, Summer Cottages, Factories and Private and Public Institutions
Private Electric Lighting Systems	
Electric and Power Pumps	
Compressors and Garage Air Service Systems	For the Factory or Private or Public Garage

FORT WAYNE ENGINEERING & MFG. CO.
MAIN OFFICE AND FACTORY
Dept. 14 Fort Wayne, Indiana.